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AUTHOR Fletcher, Marsha; And Others
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ABSTRACT

Descriptions of 36 software programs suitable for use with students in grades 4-8 include curriculum area, title, producer, hardware requirements, program description, teaching objective, and competencies. Prerequisites and introductory, developmental, follow-up, and evaluation activities are also provided for 38 instructional sequences designed to use this software for teaching the arts, communication skills, health, mathematics, library/media and computer skills, science, social studies, state geography, and thinking skills. Worksheets are included for many of the instructional sequences, and 12 additional recommended programs are listed. (MES)

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INTEGRATING COMPUTERS INTO THE CURRICULUM

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4-8

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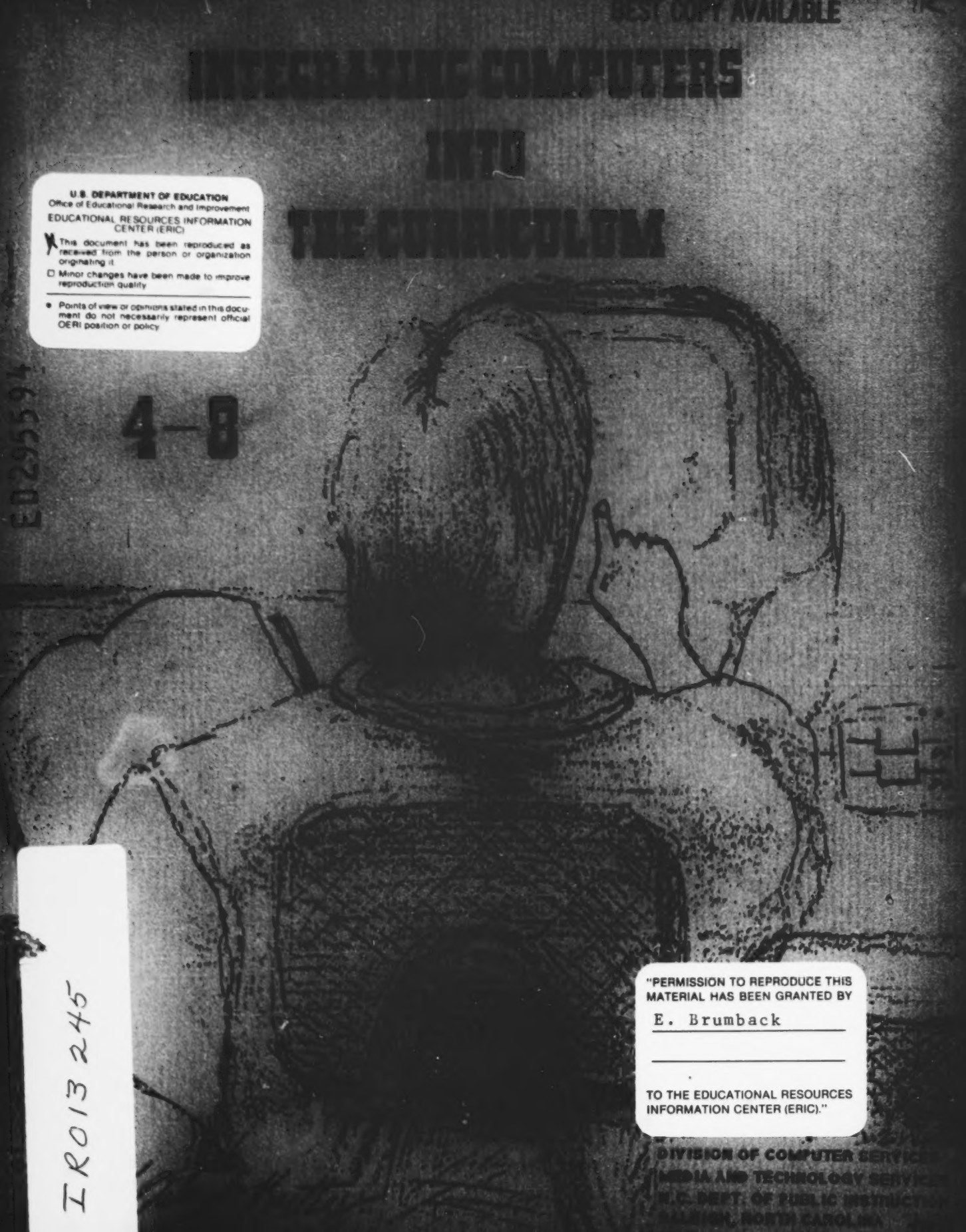

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RALEIGH, NORTH CAROLINA

LESSON PLANS DEVELOPED BY:

Marsha Fletcher	Teacher Parkway School Watauga County
Susie Cabe	Media Coordinator Macon Middle School Macon County
Harriet Lindsey	Media Coordinator Hall-Fletcher School Asheville City Schools
Ann Davis	Teacher South Greenville School Pitt County
LeeAnne McGirt	Teacher Tabernacle School Onslow County
Karen Prafka	Teacher West Hoke School Hoke County
Carolyn Penny	Teacher Sheep-Harney School Pasquotank County
Audrey Hartley	Media Coordinator Hardin Park School Watauga County

A special thanks to Talmadge Hartley, a student at Watauga High School (Boone, N.C.), for the cover he created for this booklet.

ALPHABETICAL LISTING OF SOFTWARE USED IN LESSON PLANS

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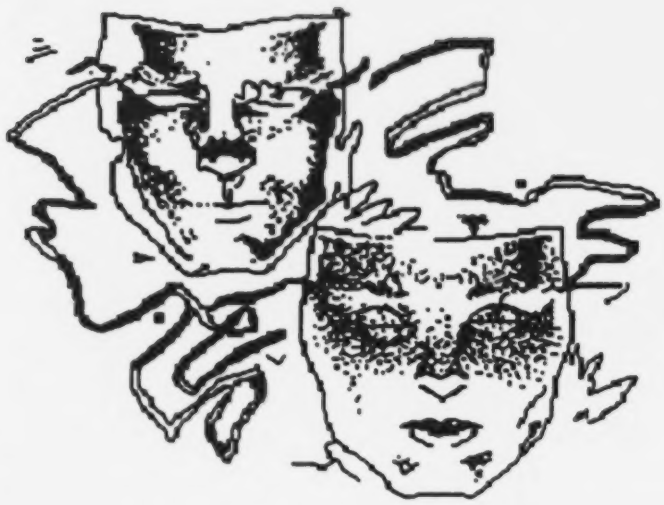
ACE REPORTER	Mindplay	1984
ADDITION AND SUBTRACTION	Silver Burdett	1987
BAKE AND TASTE	Mindplay	1986
BANK STREET FILER	Sunburst/Broderbund	1986
BEYOND THE RISING SUN	Educational Activities	1985
CLASSIFICATION OF LIVING THINGS	Educational Activities	1983
CREATIVE CONTRAPTIONS	Bantam	1985
DISCOVERY: UNDERSTANDING MAPS	Nystrom	1985
DISCOVERY: UNDERSTANDING LATITUDE AND LONGITUDE	Nystrom	1985
EARTHQUAKE SIMULATOR	Focus Media	1986
EASY GRAPH II	Grolier	1987
END PUNCTUATION	Gamco	1985
EUROPEAN NATIONS AND LOCATIONS	DesignWare	1985
FOUNDATIONS OF STATE HISTORY	Educational Publishing	1986
FRACTIONS	Silver Burdett	1987
FRED WRITIER	Cue Softswap	1986
GREEN PLANTS	Educational Activities	1986
HEALTH WATCH	Learning Well	1985
HOW CAN I FIND IT IF I DON'T KNOW WHAT I'M LOOKING FOR	Sunburst	1985
HUMAN PUMP	Sunburst	1986
MACHINES AND FORCE	DC Heath	1985
MATH WORD PROBLEMS	Weekly Reader	1986
MATH SHOP	Scholastic	1986
MICROZINE: WAGONS WEST	Scholastic	1985
MODERN EURASIA	Focus Media	1985
MOUSEPAINT	Apple	1984
NEWBERY ADVENTURE: ISLAND OF THE BLUE DOLPHINS	Sunburst	1986
PFS FILE/REPORT	Scholastic	1985
PROBLEM-SOLVING STRATEGIES	MECC	1983
PUZZLE TANKS	Sunburst	1984
SHOW TIME	MECC	1985
SPEEDWAY MATH	MECC	1986
STEPS TO COMPREHENSION	Educational Publishing	1984
SURVEY TAKER	Scholastic	1984
WORD ATTACK	Davidson & Associates	1983
WRITING ADVENTURE	Developmental Learning	1985



Arts

CURRICULUM AREA: Arts Education/Communication Skills
GRADES SUGGESTED FOR LESSON: 6
PROGRAM TITLE: SHOW TIME
PRODUCER: MECC
COPYRIGHT: 1985
EQUIPMENT: Apple II
MEMORY:64K
PERIPHERALS: color monitor; 2nd disk drive preferred

PROGRAM DESCRIPTION:
This program allows the student user to learn the basics of playwriting while producing an original play. The userhas a choice of graphics (backdrops, props, and characters) which can be moved and/or changed on the screen stage as desired. Simple music and sound effects may be chosen or composed. The script is composed and entered via the word processor built into the program.

TEACHING OBJECTIVE:
To familiarize students with the art of playwriting.

To acquaint students with some of the specialized vocabulary associated with the theater.

COMPETENCIES:
Arts Education/Theatre Arts Education: Grade 6, 1.1 Recognize, understand, and use more advanced vocabulary in drama activities such as plot (beginning, conflict, resolution, ending), tragedy, comedy, theme, dialogue, and monologue.

Communication Skills/Viewing: Grade 6, 4.1 Identify elements used for dramatic effect: sound, music setting, props costumes, and nonverbal features.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have had some experience with word processing. If not, the teacher may choose several students to practice with the program. Those students may then enter text for the other students. A MECC Writer reference section is included with the support materials.

INTRODUCTORY ACTIVITIES:
• Introduce students to theater terms such as plot, sequence, theme, mood, conflict, resolution, monologue, dialogue, characterization, backdrop, props.
• Discuss the following aspects of drama:
  - creating mood through setting and particularly through music.
  - casting and wardrobing as aids to characterization
  - theme or main idea as it relates to the mood and type of play, such as tragedy comedy, melodrama
• Designate a part of the classroom to be a stage and provide practice in moving upstage, downstage, stage left, center and right.

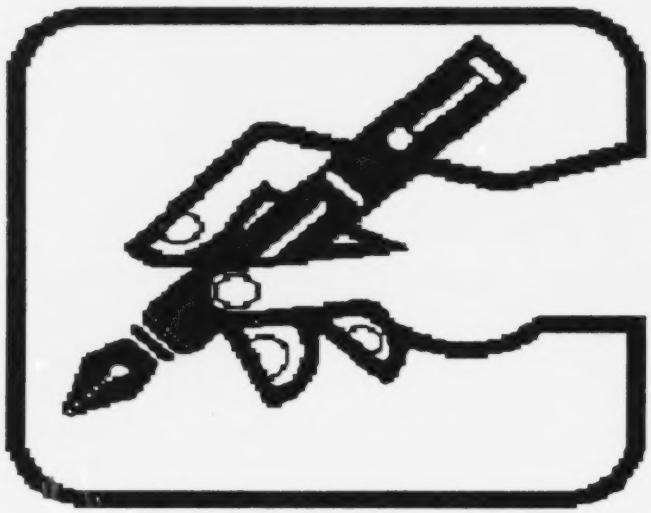
DEVELOPMENTAL ACTIVITIES:
• Introduce SHOW TIME as a program which will allow the students to produce their own plays, complete with moving characters, colorful sets, and music they may choose from the disk or compose for themselves.
• Divide students into groups, each of which will produce a play. Groups will decide among themselves which student will be the director. The director will lead the group in choosing a scriptwriter, a set designer, and a composer of the musical score.

APPLICATION/FOLLOW-UP ACTIVITIES:

- Under the leadership of the teacher, students will review each group's play and discuss the various elements of playwriting as evidenced in the production.
- Revision of the plays may follow as a result of the review.

EVALUATION ACTIVITIES:

Teacher observation



Communication skills

CURRICULUM AREA: Communication Skills
GRADE SUGGESTED FOR LESSON: 6 /Remedial
PROGRAM TITLE: ACE REPORTER
PRODUCER: Mindplay
EQUIPMENT: Apple II
PERIPHERALS: Color monitor preferred; printer

COPYRIGHT:1984
MEMORY: 64K

PROGRAM DESCRIPTION:
A colorful mystery game format is the vehicle for teaching the student to find who, what, when, where, and why and include them in a news story. Headline writing teaches the student to find the main idea and include it in the headline.

TEACHING OBJECTIVE:
To teach students to write a simple news story and a headline.

COMPETENCIES:
Communication Skills/ Reading/Literature: Grade 6, 5.2 Recognize and recall the supporting details explicit in the selection.

Goal 6 The learner will use information gained from reading, previous knowledge, and personal experiences to understand implied meaning.

Communication Skills/Writing 6.1 Share a piece of writing through publication.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
An introduction to newspaper writing and the special characteristics associated with it.

INTRODUCTORY ACTIVITIES:
If possible, use PRINT SHOP to make individual sheets with different categories of news stories at the top with an appropriate graphic, such as "Pet News," "Sports Action," "School News." Have students choose which department of the news staff he/she would like to represent. Try to get a good variety so that a newspaper can be produced.

DEVELOPMENTAL ACTIVITIES:
Students use ACE REPORTER to practice finding the important facts of a story. The program will guide them to find the facts that answer the questions Who?,What?,When?,Where?, Why?

APPLICATION/FOLLOW-UP ACTIVITIES:
If NEWSROOM is available, the teacher may use it to produce a real newspaper using the students' stories. If not, a word processing program or a typewriter may be used in conjunction with PRINT SHOP to get the stories into print.

EVALUATION ACTIVITIES:
- Have students read each other's stories and find the five W's in each.
- Have a headline writing contest and judge for originality and best incorporation of the main idea.

CURRICULUM AREA: Communication Skills
GRADE SUGGESTED FOR LESSON: 4
PROGRAM TITLE: END PUNCTUATION
PRODUCER: Gamco Industries, Inc. **COPYRIGHT:**1985
EQUIPMENT: Apple II, C64, TRS 80 Model III/4 **MEMORY:** 48K
PERIPHERALS:

PROGRAM DESCRIPTION:
This program allows students to show mastery and ability to use correct punctuation at the end of sentences as well as correct use of periods in abbreviations and initials. Class lists may be created. If students score at least 80% (using ten sentences) they may play "Robot Rescue" which involves manual dexterity but does not use language rules (just for fun). If the score is less than 80% the same lesson is repeated but with different sentences.

TEACHING OBJECTIVE:
To teach the student correct usage of ending punctuation and the use of periods in abbreviations and initials.

COMPETENCIES:
Communication Skills/Writing: Grade 4, 4.5 Use correct punctuation at end of sentences and abbreviations.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
None

INTRODUCTORY ACTIVITIES:
• Laminate strips of tagboard on which have been written a variety of types of sentences without ending punctuation marks. Prepare squares of laminated tagboard on which there is either a period, a question mark, or an exclamation point. With masking tape, attach the sentences, one at a time, to the chalkboard. Read the sentence with the class. Students discuss the correct punctuation mark that should go at the end of the sentence. One volunteer comes to the board and attaches the square with the correct punctuation mark at the end of the sentence.
• Give each student a set of three punctuation cards--one with a period, one with an exclamation point, and one with a question mark. As the teacher reads a sentence, students hold up the card with the correct punctuation mark for the sentence.

DEVELOPMENTAL ACTIVITIES:
Use a large monitor to explain END PUNCTUATION to the class. Work through the ten sentences and then play the game, "Robot Rescue."

APPLICATION/FOLLOW-UP ACTIVITIES:
• Individuals will use END PUNCTUATION. They will record their scores for the game,"Robot Rescue" on a large class chart for comparison.
• Use exercises from texts or teacher-made worksheets to provide written practice.

EVALUATION ACTIVITIES:
Written test

CURRICULUM AREA: Communication Skills
GRADE SUGGESTED FOR LESSON: 5
PROGRAM TITLE: STEPS TO COMPREHENSION
PRODUCER: Educational Publishing Concepts
COPYRIGHT: 1984
EQUIPMENT: Apple II
MEMORY: 64K
PERIPHERALS: color monitor

PROGRAM DESCRIPTION:
STEPS TO COMPREHENSION consists of ninety short stories ranging in difficulty levels. It uses the traditional and cloze methods for improving comprehension skills. Story reprints are included. The appendix contains the title, level, and number of questions in each story.

TEACHING OBJECTIVE:
To locate and identify details from a short story.

COMPETENCIES:
Communication Skills/Reading Literature: Grade 5, 1.2 Recognize and recall the supporting details explicit in the selection.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have had some experience in finding missing words using context clues.

INTRODUCTORY ACTIVITIES:
- Students read a portion of a story from a transparency prepared by the teacher. Questions are answered by highlighting information in the paragraph. Students complete reprint of story and use the disk to reread and correct activity.
- Teacher prepares a story chart with words omitted. Students add words using context clues.

DEVELOPMENTAL ACTIVITIES:
- Students reconstruct story by selecting details from an envelope of related statements.
- "Catch the Teacher" - Teacher reads story orally adding incorrect or related details. Students identify incorrect statement, provide the correct information, and receive points. If the students are unable to identify the error, the teacher receives the point. Points are tallied at the end of the story.
- Students listen to taped story then complete matching activity containing questions and answers.

APPLICATION/FOLLOW-UP ACTIVITIES:
- Students read newspaper articles and develop questions.
- Continue to use disk for maintaining/reinforceing comprehension skills
- Play the game, "Jeopardy" - Students will select an answer card for a question, read it, and provide the question for the answer within a specified time limit.

EVALUATION ACTIVITIES:
- Students correctly select details from a story.
- Students reconstructs story using details
- Students advance through various levels of the computer program

CURRICULUM AREA: Communication Skills
GRADE SUGGESTED FOR LESSON: 7-8
PROGRAM TITLE: WORD ATTACK!
PRODUCER: Davidson & Associates
COPYRIGHT: 1983
EQUIPMENT: Apple II, Mac, IBM, C64
MEMORY: 128
PERIPHERALS: printer optional

PROGRAM DESCRIPTION:
A four-part vocabulary development program: (1) "Word Display" displays a word on the screen with a brief definition (2) "Multiple Choice Quiz" reinforces the presented words in two formats--matching the word with meaning or the meaning with the word. (3) "Sentence Completion" gives the student a word on the top of the screen with a sentence. The user must place a word in the sentence which is a synonym for the displayed word. (4) "Word Attack!" is an arcade-like shooting game in which the object is to match a definition with the correct word. Teachers may create their own word lists or use one from the nine levels included for grades 4-12. Teacher can choose to use nouns, verbs, or adjectives. Lists may be printed. Scores are given.

TEACHING OBJECTIVE:
To increase vocabulary understanding and usage.

COMPETENCIES:
Communication Skills/Reading and Literature: Grade 7 and 8, Goal 1 The learner will increase vocabulary to aid in comprehension

Goal 2 The learner will use contextual clues to aid in comprehension.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Some exposure to matching words with definitions and an introduction to synonyms.

INTRODUCTORY ACTIVITIES:
The use of WORD ATTACK! could be used after any of the following activities:

- Word pretest
- Spelling lesson
- Content area lesson
- Review of synonyms in writing

DEVELOPMENTAL ACTIVITIES:
• Individuals can use WORD ATTACK to produce a teacher generated list of words and definitions or synonyms to review for a cumulative unit test.
• The teacher may introduce a thesaurus to be used instead of a dictionary to find certain definitions.
• A high level list from WORD ATTACK can be used on a large monitor with teams competing to find the correct answers in the sentence completion section.
• Advanced students can use WORD ATTACK to create lists of words and synonyms for peers or teacher.
• Class can utilize the program with a discussion of context clues. The teacher can direct the activity using a large monitor (covering the cue word at the top of the screen in the sentence completion activity). Students can state a possible solution for the blank and give an analysis to support their answer.

APPLICATION/FOLLOW-UP ACTIVITIES:

- Make a chart of student progress
- Provide a center which includes thesaurus activities
- Provide cloze activities with synonyms placed under each blank.
- Encourage students to contribute words they wish to learn to class lists
- Help class create a class word bank of difficult words
- Use the game activity on WORD ATTACK to motivate reluctant learners.

EVALUATION ACTIVITIES:

- Use word lists for post test
- Teacher can use words from the word lists to create a story. Students must identify words and give meanings.

CURRICULUM AREA: Communication Skills
GRADE SUGGESTED FOR LESSON: 4
PROGRAM TITLE: THE WRITING ADVENTURE
PRODUCER: Developmental Learning Materials **COPYRIGHT:**1985
EQUIPMENT: Apple, C64 **MEMORY:**48K

PERIPHERALS: color monitor; printer

PROGRAM DESCRIPTION:
The program uses a succession of colorful graphics and guiding questions to motivate writing. The user is presented with choices at the end of each sequence that determine the next sequence. As the program is used , the student takes notes which will help create their first draft.

TEACHING OBJECTIVE:
To guide students through a writing project in which they will collect details, take notes, draft, and edit. Students will experience cause and effect relationships based on choices made during the adventure.

COMPETENCIES:
Communication Skills/Writing: Grade 4, Goals 1 through 4 and 6. All these goals involve the writing process--Prewriting, drafting, revising, editing, and publishing.

Goal 5 The learner will evaluate own writing and that of peers.

Goal 7 The learner will gain literal information from visuals.

Communication Skills/Reading/literature: Grade 4, 6.6 Determine elements of cause and effect relationships in a selection.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should be able to gather details and take notes on a selected picture or text. A knowledge of editing techniques is necessary.

INTRODUCTORY ACTIVITIES:
The teacher will direct the class in these activities:
- Brainstorming on situational words
- Listing details of projected picture (use opaque projector, filmstrip frame,etc.)
- Writing sentences about a picture
- Giving cause and effect after being given a situation

DEVELOPMENTAL ACTIVITIES:
Class will view THE WRITING ADVENTURE together using a large monitor. Each student will take notes as the story progresses through several sequences. (Since the progress can be saved, the activity can continue for several days. The teacher can stop the adventure at any point.) Each student will write the adventure as viewed with the class (using individual notes) and then add their own ending. Students will revise their own drafts and share the revisions with each other.

APPLICATION/FOLLOW-UP ACTIVITIES:

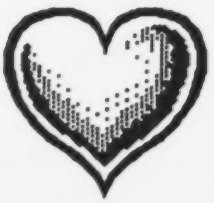
- The class will critique a sample writing (not done by a class member)
- Pairs of students will work together and critique each others composition.
- Students will be encouraged to submit writing to contests or publications.
- Provisions will be made for students to enjoy free writing using a word processor.

EVALUATION ACTIVITIES:

- A classroom center will be provided with pictures and questions to be used as story starters.
- Students will write language experience stories.

Healthful Living

HAVE A HEART!!



The following four lessons may be used independently or they may be used collectively to create a sequence of lessons on the heart. If used together, the order of use outlined below would be appropriate:

THE HUMAN PUMP --	**Use first as an introduction to the heart and its parts**
EASY GRAPH II ----	**Use to develop an awareness of how to maintain and care for the heart through exercise**
HEALTH WATCH ---	**Use to develop an awareness of how to maintain and care for the heart through proper diet**
SURVEY TAKER ---	**Use as a follow-up lesson on care of the heart to make students aware of how they are caring for their hearts.**

CURRICULUM AREA: Healthful Living/Science
GRADE SUGGESTED FOR LESSON: 5
PROGRAM TITLE: THE HUMAN PUMP
PRODUCER: Sunburst
EQUIPMENT: Apple II
PERIPHERALS: color monitor

COPYRIGHT:1986
MEMORY:48K

PROGRAM DESCRIPTION:
THE HUMAN PUMP offers three activities to acquaint students with the anatomy and physiology of the heart and risk factors associated with the development of heart disease. #1 "Heart's Parts" and #2 "Cardiovascular Challenge" provide instruction on the physical parts of the heart and their functions. #3 "Heart Risk Race" is a game which teaches the relationship between food and physical fitness.

TEACHING OBJECTIVE:
To help students know the parts of the heart and their functions.

COMPETENCIES:
Healthful Living Education/Health Education/Growth and Development: Grade 5, 1.1 Identify major components of the circulatory system.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should know the general anatomy and physiology of the heart.

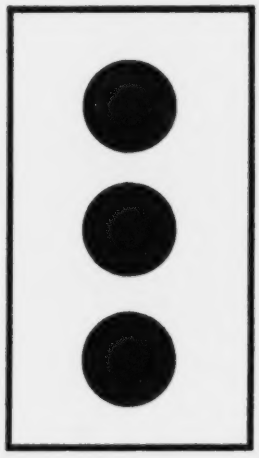
INTRODUCTORY ACTIVITIES:
Display a large, unlabeled, laminated chart of the heart. (See HUMAN PUMP program manual for examples.) Distribute cards with names of the 11 heart parts to selected students. Other students will observe demonstration. As teacher describes/discusses each heart part, student with matching card will tape their card to the appropriate space on the chart.

DEVELOPMENTAL ACTIVITIES:
Use "Heart's Parts" for large group instruction using large monitor/TV. Each students has a 12 x 5 (approx.) piece of tagboard on which are three large black dots. (See example below.) As questions appear on the screen, students hold up their answer cards and point to the dots which indicates their choice for the correct answer. (Example - If answer #1 is the choice, then student points to the lower dot; answer #2 would get a point to the middle dot, etc.) Worksheets provided by the program are excellent and should be done simultaneously.

APPLICATION/FOLLOW-UP ACTIVITIES:
- Distribute individual diagrams of the heart which have been labeled and laminated. As teacher demonstates/discusses path of blood through the heart on large chart or transparency, students trace the course of blood through heart on their diagrams using washable markers. (See program manual for sample charts.)
- Use the program, "Cardiovascular Challenge" as a large group activity. Students may use response cards and complete worksheets found in manual.

EVALUATION ACTIVITIES:
Students trace and discuss laminated diagrams in pairings of weak/strong students.

STUDENT ANSWER CARD



CURRICULUM AREA: Healthful Living/Mathematics
GRADE SUGGESTED FOR LESSON: 5
PROGRAM TITLE: EASY GRAPH II
PRODUCER: Grolier
COPYRIGHT: 1987
EQUIPMENT: Apple II, IBM, C64
MEMORY: 64K
PERIPHERALS: color monitor preferred

PROGRAM DESCRIPTION:
EASY GRAPH II is a computer graphing tool that allows students to create graphs of their own. They can create and print pictographs, bar graphs, pie charts, and line graphs. Six items may be used on one graph. Graphs may be saved.

TEACHING OBJECTIVE:
To help students understand the relationship between exercise and heart rate.

COMPETENCIES:
Healthful Living Education/Health Education/ Chronic Diseases: Grade 5, Goal 1 The learner will be aware of causes, symptoms, prevention, and myths about chronic diseases.

Mathematics, Grade 5, Goal 7 The learner will demonstrate an understanding of graphs, tables, and simple statistics.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should know that a pulse is the bulging out of the artery each time the heart beats and be able to find their pulse on wrist or neck. Students should be able to calculate averages or numbers.

INTRODUCTORY ACTIVITIES:
Teacher and students discuss the importance of exercise in maintaining a healthy heart. They predict the effect of exercise on heart rate.

DEVELOPMENTAL ACTIVITIES:
Conduct experiment "Measuring Your Heart Rate." Students measure their own pulse rates for one minute after the following exercises: Sitting, walking, running, and jumping. They record their pulse rates on individual charts. (See Chart 1 below.) Students add their statistics to boys or girls charts.(See Chart 2 below.) Using calculators, boys find their group average for each activity and girls find their group average for each activity.

APPLICATION/FOLLOW-UP ACTIVITIES:
With entire group and large monitor use EASY GRAPH II to create a bar graph showing averages for boys and girls. Follow this with graphs showing class averages for each exercise. If students need experience with creating graphs, they can use a paper form (See Chart 3 below.) to create the graphs after they are shown by the computer.

Individual students should plot, graph, and print their personal heart rate statistics as recorded on Chart 1.

EVALUATION ACTIVITIES:

Discuss results of class charts. Ask questions such as the following:

- How did each kind of exercise affect the heart rates of boys and/or girls?
- What kinds of exercises cause the greatest increase in heart rate?
- What kinds of exercises cause the least increase in heart rate?
- Why is exercise good for the heart?

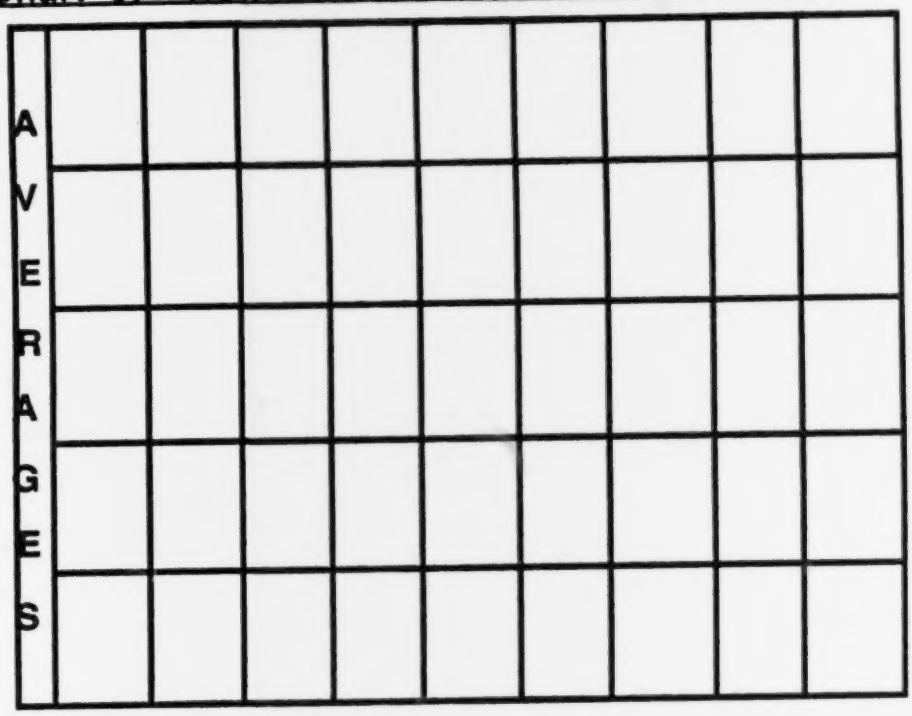
Chart 1: Individual Heart Rates

Name:_____	
ACTIVITY	**NUMBER OF HEARTBEATS PER MINUTE**
sitting	
walking	
running	
jumping	

Chart 2: Calculating Average Heart Rates

Check one:_____ Boy _____ Girl				
Student	Number of heartbeats per activity			
	sitting	walking	running	jumping
Etc. . . .				
Group total				
Group average				

Chart 3: How Exercise Effects Heart Rate



CURRICULUM AREA: Healthful Living
GRADE SUGGESTED FOR LESSON: 4
PROGRAM TITLE: HEALTH WATCH
PRODUCER: Learning Well
COPYRIGHT: 1985
EQUIPMENT: Apple II
MEMORY: 48K
PERIPHERALS: color monitor; printer

PROGRAM DESCRIPTION:
HEALTH WATCH offers three animated games: "Eating Well," "Brush Up," and "Fitness Fun," that encourage and reinforce basic attitudes of good health. "Eating Well" focuses on the body's nutritional needs and the concept of a balanced daily menu. Students categorize food in the four food groups and use the foods to plan meals and snacks that make up a balanced daily menu.

TEACHING OBJECTIVE:
To help students learn to select a nutritionally balanced daily menu.

COMPETENCIES:
Healthful Living Education/Health Education/Nutrition: Grade 4, Goal 1 The learner will choose to eat foods that contribute to health.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students must know the four basic food groups and recommended servings for each per day.

INTRODUCTORY ACTIVITIES:
Teacher and students review the four basic food groups, examples of each group, and recommended daily servings. List Chart 1 on chalkboard. (See example below.)

DEVELOPMENTAL ACTIVITIES:
Students design a pictorial food chart showing a balanced daily menu. They should include the following meals: breakfast, morning snack, lunch, afternoon snack, and dinner. The exact number of servings must be shown: two meats or seafood, four breads or cereals, four fruits or vegetables, and four dairy products. Students should cut pictures from magazines or draw foods of their choice to include on their charts.

APPLICATION/FOLLOW-UP ACTIVITIES:
Distribute worksheets (See example below.) and demonstrate the program "Eating Well" to the entire class. Students view program individually and complete worksheet simultaneously. To successfully complete the program, students must be able to select balanced meals and a balanced daily menu.

EVALUATION ACTIVITIES:
Keep a class chart of students who successfully complete the program.

Chart 1 Choose a Balanced Daily Menu

FOOD GROUPS	RECOMMENDED DAILY SERVINGS
Meats and Seafood	2
Bread and Cereals	4
Fruits and Vegetables	4
Dairy Products	4

Worksheet

Eating Well

Player _____

I. Choose exactly 14 food items in the following quantities:
Hint: Selecting foods in order will help you remember what you have selected.

FOOD GROUPS	RECOMMENDED DAILY SERVINGS
Meats and Seafood	2
Bread and Cereals	4
Fruits and Vegetables	4
Dairy Products	4

II. PLANNING MEALS: As you select items for each meal, put a check in the proper column to help you remember what you have chosen. You must have the exact number of servings listed.

Meal	Meats/ Seafood (2)	Bread/ Cereal (4)	Fruits/ Vegetables (4)	Diary Products (4)
Breakfast				
Snack				
Lunch				
Snack				
Dinner				

III. Final Score _____
Balanced Meals _____
Balanced Day _____

CURRICULUM AREA: Healthful Living Education
GRADE SUGGESTED FOR LESSON: 5
PROGRAM TITLE: SURVEY TAKER
PRODUCER: Scholastic
EQUIPMENT: Apple II
PERIPHERALS: Printer

COPYRIGHT: 1984
MEMORY: 48K

PROGRAM DESCRIPTION:
SURVEY TAKER will enable students to create a survey, take it on the computer, and see the results in a table and a bar graph. The survey and the results may be printed for distribution.

TEACHING OBJECTIVE:
To help students determine if their personal habits will help reduce their risk of heart disease.

COMPETENCIES:
Health Living Education/Health Education/ Chronic Diseases: Grade 5, Goal 1 The learner will be aware of causes, symptoms, prevention and myths about chronic diseases.

INSTRUCTIONAL SEQUENCE

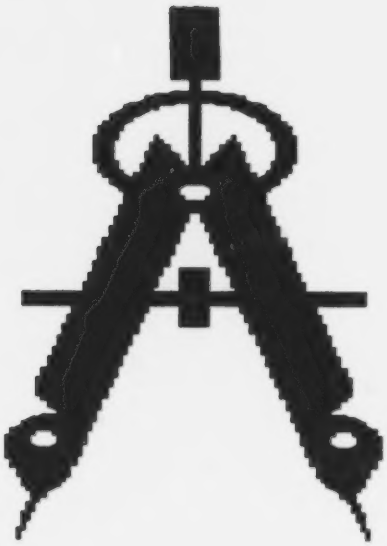
PREREQUISITES: (experiences, activities, materials exposure)
Students must be aware of the effect of exercise and diet on the heart. They should understand surveys, what they are, how they are conducted, and the how the results are interpreted.

INTRODUCTORY ACTIVITIES:
Discuss factors that cause increased risk of heart disease. Teacher and students decide the factors to be surveyed and devise questions for the survey (Example - "How often do you exercise?" (A) not at all (B) 1-2 times per week (C) 3-4 times per week (D) more than 4 times per week.).

DEVELOPMENTAL ACTIVITIES:
Use SURVEY TAKER, randomly selecting students to type in the questions. Allow each student in the class to take the survey. Teacher may want to ask another class to take the survey, or the librarian may allow additional students to take the survey when they are in the library.

APPLICATION/FOLLOW-UP ACTIVITIES:
Review and analyze results of the survey in a large group setting. Discuss implications for the class as a whole and as individuals.

EVALUATION ACTIVITIES:
Students can create posters to encourage good health practices.



Mathematics

CURRICULUM AREA: Mathematics
GRADE SUGGESTED FOR LESSON: 4 /Remediation
PROGRAM TITLE: ADDITION AND SUBTRACTION
PRODUCER: Silver Burdett
COPYRIGHT: 1987
EQUIPMENT: Apple II
MEMORY: 64K
PERIPHERALS: color monitor preferred

PROGRAM DESCRIPTION:
ADDITION AND SUBTRACTION provides instruction in a step-by-step format of addition, subtraction, place values, and rounding numbers. It includes individual practice with or without helps. The program is user friendly and gives additional prompts if an incorrect answer is given. A math game is included after a round of instruction. An individual student record sheet is included in the program manual.

TEACHING OBJECTIVE:
To review addition, subtraction, rounding, and place value.

COMPETENCIES:
Mathematics: Grade 4, 1.3 Give place value of a digit in a number less than one million

2.1 Recall basic addition and subtraction facts with reasonable promptness.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
A basic introduction to addition and subtraction would be needed.

INTRODUCTORY ACTIVITIES:
Directions should be introduced in a small group format, especially if used for remediation,

DEVELOPMENTAL ACTIVITIES:
Students use mini-chalkboards and work the computer problems individually as they appear on the monitor. Each checks his work as the work is done on the computer.

APPLICATION/FOLLOW-UP ACTIVITIES:
Students design a practice test which includes addition, subtraction, rounding and place value, as well as a key for checking. After the key is approved by the teacher, students exchange tests.

EVALUATION ACTIVITIES:
Grades on the practice test could be used for evaluation.

CURRICULUM AREA: Mathematics
GRADE SUGGESTED FOR LESSON: 4
PROGRAM TITLE: BAKE AND TASTE
PRODUCER: Mindplay **COPYRIGHT:** 1985
EQUIPMENT: Apple II, IBM **MEMORY:** 48K
PERIPHERALS: color monitor preferred and printer is optional

PROGRAM DESCRIPTION:
This program guides students through the process of baking a cake for guests. Each ingredient in the recipe must be measured. The user must set the time to mix the batter, set the correct oven temperature, and set the length of time to bake. The user must choose the type of dessert according to the guests' tastes.

TEACHING OBJECTIVE:
To provide practice and understanding in the use of measurements.

COMPETENCIES:
Mathematics: Grade 4, Goal 3 The learner will demonstrate an understanding of fractions and their applications

Goal 5 The learner will understand and use standard units of metric and customary measurment.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have been introduced to measurements and simple fractions.

INTRODUCTORY ACTIVITIES:
- Allow students to handle measuring cups and spoons to compare sizes.
- Place labels on a table for the various measuring utensils and have students place the item on its label.
- Ask class to give directions for making a peanut butter sandwich. Teacher or students follows the directions, regardless of outcome.

DEVELOPMENTAL ACTIVITIES:
Use BAKE AND TASTE when students are comfortable with the measuring tools. Each student can follow directions to print out a recipe if a printer is available.

APPLICATION/FOLLOW-UP ACTIVITIES:
- Class may actually cook some of the recipes given in BAKE AND TASTE
- Class can develop a class cookbook of favorite recipes, foreign recipes, or recipes with special nutritional values (Example - salt free, low fat, etc.).
- Teacher can provide additional activities and worksheets on fractions and measurements.
- Expand lessons to include dangers and accidents in cooking and in the kitchen.

EVALUATION ACTIVITIES:
Students will write equivalents for measuring utensils (Example - 2 tsp = 1 tbsp)
Observation of the success of the class baking activity

CURRICULUM AREA: Mathematics
GRADE SUGGESTED FOR LESSON: 4-8
PROGRAM TITLE: FRACTIONS
PRODUCER: Silver Burdett
EQUIPMENT: Apple II
PERIPHERALS: color monitor

COPYRIGHT: 1987
MEMORY: 64K

PROGRAM DESCRIPTION:
The program consists of two components. "Fraction I" includes activities on identifying and renaming fractions, finding greatest common factors, and finding the least common multiple. "Fraction II" contains the addition, subtraction, multiplication and division of fractions. A lesson, practice activities, and a game is included in each component.

TEACHING OBJECTIVE:
To rename an improper fraction as a whole/mixed number

COMPETENCIES: Mathematics: Grade 7, 3.4 Change an improper fraction to either a mixed or a whole number.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have had some experience with proper/improper fractions and whole/mixed numbers. Teacher can review this knowledge by giving examples of fractions and having students place each under the correct heading.

INTRODUCTORY ACTIVITIES:
• Teacher uses various cut fruit to represent fractional units. Have students write an improper fraction for the cut parts. Place parts together and write whole/mixed numbers.
• Draw several geometric figures (circles, rectangles, etc.) on a transparency. Show an improper fraction by dividing the figure into sections and shading the parts. Write the fraction which shows the shaded parts and the whole/mixed numbers. (See example below.)

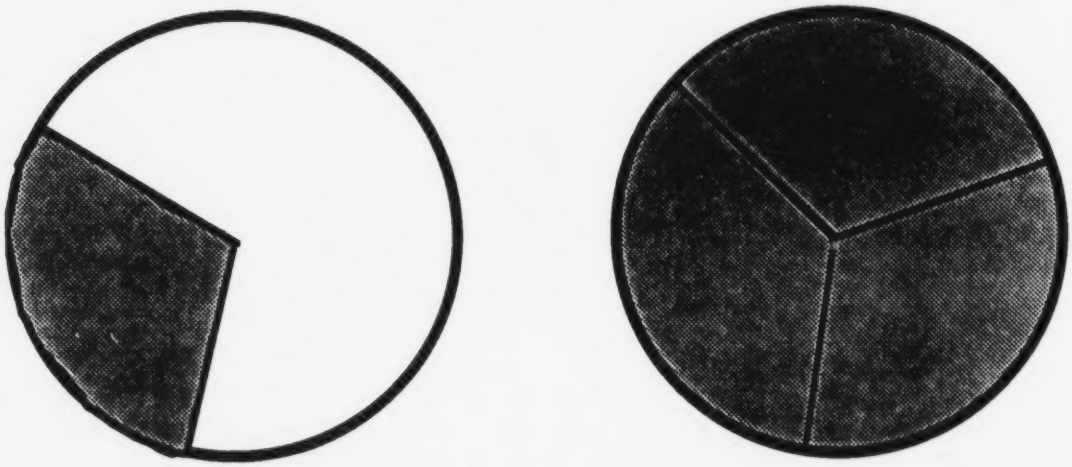
DEVELOPMENTAL ACTIVITIES:
• Use paper plates to show whole/mixed numbers. Cut plates into various sections (fourths, sixths, etc.) Have students place parts together and write whole/mixed numbers.
• Students will use fraction bars (N.C. Manipulative Kit) to rename improper fractions.
• Use "Fractions I" - "Mixed Numbers, Practice." As a review, the lesson component may be used. This activity is designed for individual or small group use.

APPLICATION/FOLLOW-UP ACTIVITIES:
• Student will draw and label examples of improper fractions as whole/mixed numbers.
• Play match game . Students match improper fraction cards with whole/mixed number cards.
• Small groups play the game, "Showdown." Make a set of self checking improper fraction cards with a matching whole/mixed number set. Select leader and pass out whole mixed number cards. Leader holds card up and members place correct answer cards face down. Winner is the person who places all cards down first.

EVALUATION ACTIVITIES:

- Use manipulatives (paper plates, fraction bars) to rename improper fractions.
- Write whole/mixed numbers for shaded improper fractions on transparency.
- Use true-false cards to answer teacher directed questions. (See example below.) Each student is given a card 8 x 10 with the word FALSE on one end and TRUE on the other end. As the teacher shows examples, the student holds the card up to show if the example is correct or incorrect. (Example - 7/6 = 1 1/6-----TRUE)

4/3 = 1 1/3



TRUE

FALSE

ANSWER CARD

CURRICULUM AREA: Mathematics
GRADE SUGGESTED FOR LESSON: 5
PROGRAM TITLE: MATH SHOP
PRODUCER: Scholastic
EQUIPMENT: Apple II, IBM, C64
PERIPHERALS: color monitor preferred

COPYRIGHT:1986
MEMORY: 64K

PROGRAM DESCRIPTION:
This program uses a game format to provide practice with a variety of math concepts such as fractions, decimals, percentages, and two-variable equations. Mathematical computations are required as the student attempts to serve customers entering various stores in a mall. Each store is selling a product that requires a different computational skill to deliver the goods to the customer (Example - In the jewelry store you must add decimals to weigh gold.).

TEACHING OBJECTIVE:
To focus attention on the place value concept of decimals through the operation of addition.

COMPETENCIES:
Mathematics: Grade 5, 4.4 The learner will demonstrate an understanding of adding decimal numbers.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students need an understanding of the place value of decimals and the basic operation of addition.

INTRODUCTORY ACTIVITIES:
The lesson will be introduced by reviewing previous lessons regarding decimal place values and estimating sums of decimals. Appropriate review questions can be asked to determine the students readiness to progress from estimating the sum of decimals to actual computation.

DEVELOPMENTAL ACTIVITIES:
The teacher will move into the lesson by asking for occasions when estimating the sum of decimals would be sufficient. After student responses are discussed, the teacher can comment that in all instances mere estimation is not adequate. Sometimes it is necessary to have a definite number. Students may provide examples of when the exact sums of decimals would be necessary. Using the overhead projector or the chalkboard, the teacher will present the concept of the addition of decimals. The teacher will show examples and give students the opportunity to ask questions and solve problems. Following the large group activity, students will be given an opportunity to practice adding decimals using a worksheet. While others are working on the worksheet, pairs of students will rotate through one section of MATH SHOP. The appropriate section of the program to be used is "One Shop - The Jewelry Store." Students should be allowed 10 minutes computer time (this can be varied by the teacher depending upon the students and the classroom situation.). Students should record the number of customers served during that time period. The "Jewelry Worksheet A," which comes with the program, is an appropriate number search to be used at this time. It relates decimals to the concept of dollars and cents.

APPLICATION/FOLLOW-UP ACTIVITIES:
• A visit by a local jeweler to demonstrate the actual weighing of jewelry using decimals would help students apply the concept to real life. If possible, students should be allowed to weigh pieces of their own jewelry and add the totals.
• Use a stop watch to time the number of seconds and tenths of seconds necessary for groups of students to run a set distance. Each student in the group could be timed and recorded and then all times added to get the total for the group The group with the smallest total would be the winner.

EVALUATION ACTIVITIES:

• The written worksheets would be checked in class by the students themselves to allow them to see their mistakes and ask questions about their errors. The teacher would have some idea of the students' understanding by reviewing these scores.

•The number of customers served in the computer program would also be an indication of the user's ability to add decimals.

CURRICULUM AREA: Mathematics
GRADE SUGGESTED FOR LESSON: 4-6
PROGRAM TITLE: MATH WORD PROBLEMS
PRODUCER: Weekly Reader Family Software
COPYRIGHT: 1986
EQUIPMENT: Apple II
MEMORY: 48K
PERIPHERALS: optional printer

PROGRAM DESCRIPTION:
In MATH WORD PROBLEMS the users are given word problems in which they must first determine the operation to be done and then solve the problem. An on-screen calculator is available if needed. Report sheets can keep up to fifty students' scores.

TEACHING OBJECTIVE:
To teach children problem solving skills by giving them practice in choosing the correct opration and then solving the problem.

COMPETENCIES: Mathematics: Grade 4, 2.20 Solve story problems using whole number computation.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
An understanding of the four basic math operations.

INTRODUCTORY ACTIVITIES:
Read story problems from texts to students and have them decide on correct operation to solve problems. Discuss key words that can help determine operation. (Example - "How many in all" indicates addition.)

DEVELOPMENTAL ACTIVITIES:
Activities involving mental math would provide a good background for MATH WORD PROBLEMS. These could be done by having children go to the board in "Little House on the Prairie" style (Teacher reads a problem and all students solve it.) Other children could be working through the computer activity in small groups or pairs.

APPLICATION/FOLLOW-UP ACTIVITIES:
Provide additional story problems in texts or other printed activities.

EVALUATION ACTIVITIES:
Score sheets could be evaluated. If necessary, remedial work could be assigned for further study.

CURRICULUM AREA: Mathematics
SUGGESTED GRADES: 4-5
PROGRAM TITLE: SPEEDWAY MATH
PRODUCER: MECC
COPYRIGHT: 1986
EQUIPMENT: Apple II
MEMORY: 64K
PERIPHERALS: Printer optional

PROGRAM DESCRIPTION:
SPEEDWAY MATH is a collection of three programs in game format designed to provide students with practice in quick recall of basic math facts. Graphics and vocabulary center around car races. Teacher options allow modification of availability of choices, type of problems, and difficulty levels. Class scores are available and students may enter their high scores in a "Hall of Fame." Review of incorrect problems is provided.

TEACHING OBJECTIVE:
To provide math review and drill to reinforce the teaching of basic math facts.

COMPETENCIES:
Mathematics: Grade 4 , 2.1 Recall basic addition and subtraction facts with reasonable promptness

2.8 Give reasonably prompt responses to all basic multiplication facts

2.14 Learn basic division facts.

INSTRUCTIONAL SEQUENCE

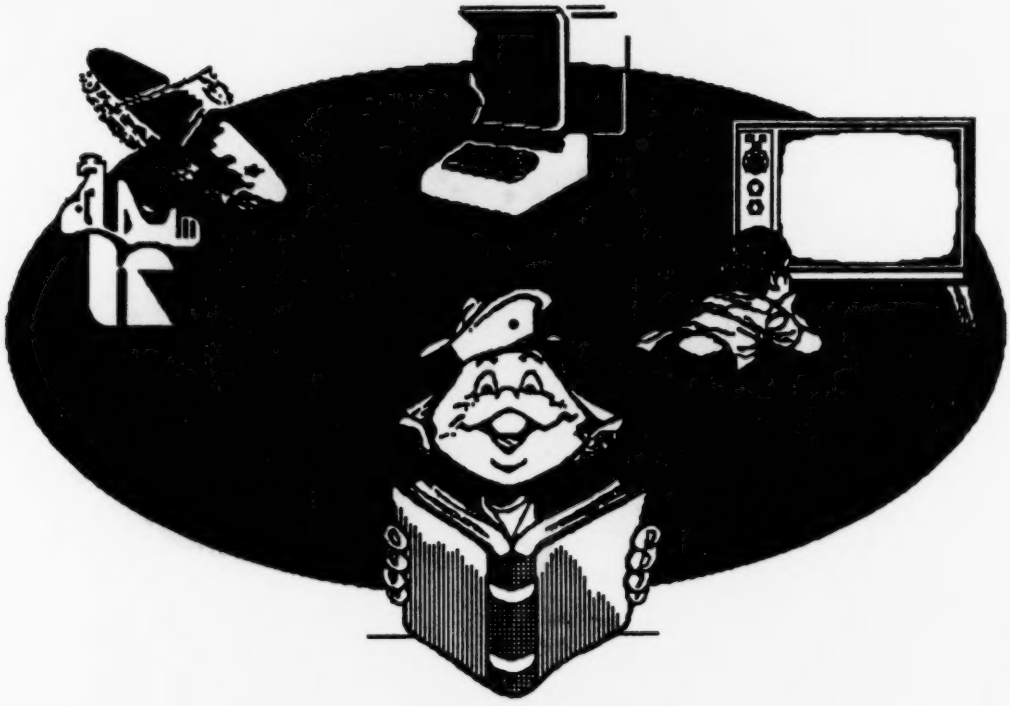
PREREQUISITES: (experiences, activities, materials exposure)
Students should have been introduced to basic math facts which include three-digit addition and subtraction, two-digit multiplication, and one-digit division.

INTRODUCTORY ACTIVITIES:
Students participate in a "Math Bee." Teacher shows flashcard with math problem. Those who miss may work the problem correctly at their seats and return to the game. A timer is set by teacher to go off at a certain time. Those students remaining at the sound of the buzzer are rewarded in some way (stickers are good).

DEVELOPMENTAL ACTIVITIES:
Use a large monitor to introduce students to the three games in SPEEDWAY MATH. Small groups are assigned sections they are to work through during a certain period of time (week, three days, etc.) Assignments will vary with ability levels of students.

APPLICATION/FOLLOW-UP ACTIVITIES:
Continued use of "Math Bees."

EVALUATION ACTIVITIES:
Written test.



Media

CURRICULUM AREA: Library/Media and Computer Skills
GRADE SUGGESTED FOR LESSON: 4-8
PROGRAM TITLE: HOW CAN I FIND IT IF I DON'T KNOW WHAT I'M LOOKING FOR
PRODUCER: Sunburst **COPYRIGHT:** 1985
EQUIPMENT: Apple II **MEMORY:** 48K
PERIPHERALS: Printer

PROGRAM DESCRIPTION:
This program is intended to help students know what sources in the school media center can be used to answer reference questions or contain facts needed for a report. It guides users to a variety of reference books that may have the information they need. The Media Coordinator may add, edit, or delete the titles included in the data file to match the specific collection.

TEACHING OBJECTIVE:
To provide individualize instruction in the selection and use of basic reference materials in the school media center.

COMPETENCIES:
Library/Media & Computer Skills: Grades 4-8, Goal 2 The learner will select and use materials and equipment appropriate to personal needs and classroom assignments.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students will need to be familiar with the reference area of the media center and how to use basic alphabetical arrangement and the Dewey Decimal System in order to locate items.

INTRODUCTORY ACTIVITIES:
Review arrangement of card catalog and how to use call numbers for locating books.

DEVELOPMENTAL ACTIVITIES:
Teacher or media coordinator may make specific assignments on persons, places, history, sports, science, hobbies, careers, religions, music, art, literature, etc., for which the student will locate specific information. Student could use a form to gather the information on the specific topic (See example below.). It is good to emphasize that credit must be given to the source used by citing title, publisher and copyright date.

APPLICATION/FOLLOW-UP ACTIVITIES:
Student will use HOW CAN I FIND IT IF I DON'T KNOW WHAT I'M LOOKING FOR and answer prompts to determine which list of reference sources will be used. (See example below.) The information that has been compiled could be presented in a creative drama by the individuals and perhaps video taped for showing to other groups. (Example - If animals were the subject and a student chose to do a report on rabbits, he could do creative storytelling on "How the Rabbit Got His Cotton Tail.")

EVALUATION ACTIVITIES:
Students will locate reference sources in the media center and determine which to use in order to find their needed information. The teacher/media coordinator could note how many items discovered in the research are incorporated and relayed through the creative drama or storytelling.

NAME: _____
CLASS: _____

ANIMAL REPORTS

1. Name of animal: _____
2. Classification _____
3. Habitat: _____
4. Where found: _____
5. Food: _____
6. Description of female: _____
7. Description of male: _____
8. Description of baby: _____
9. Number of newborn: _____
10. Length of life: _____
11. Characteristics: _____
12. Paragraph: _____

_____

_____

_____

Sources used:

_____

_____

GEORGE WASHINGTON
may be in one of these

CONCISE DICTIONARY OF AMERICAN BIOGRAPHY
FACTS ABOUT THE PRESIDENTS
GREAT NORTH AMERICAN INDIANS
NOTABLE AMERICAN WOMEN
WEBSTER'S AMERICAN BIOGRAPHIES
WHO WAS WHO IN AMERICA

NAPOLEON BONAPARTE
may be in one of these

BIOGRAPHY ALMANAC
CHAMBERS BIOGRAPHICAL DICTIONARY
MCGRAW-HILL ENCYCLOPEDIA OF WORLD BIOGRAPHY
WEBSTER'S BIOGRAPHICAL DICTIONARY

JUDY BLUME
may be in one of these

CHAMBERS BIOGRAPHICAL DICTIONARY
CURRENT BIOGRAPHY
INTERNATIONAL WHO'S WHO
MCGRAW-HILL ENCYCLOPEDIA OF WORLD BIOGRAPHY
WEBSTER'S BIOGRAPHICAL DICTIONARY
WHO'S WHO IN AMERICA

CURRICULUM AREA: Library/Media Skills/ Communication Skills
GRADE SUGGESTED FOR LESSON: 6 (Grade 6 Fry readability)
PROGRAM TITLE: A NEWBERRY ADVENTURE: ISLAND OF THE BLUE DOLPHINS
PRODUCER: Sunburst **COPYRIGHT:** 1986
EQUIPMENT: Apple II **MEMORY:** 64K
PERIPHERALS:

PROGRAM DESCRIPTION:
This program focuses on vocabulary and comprehension skills. It uses the story of Scott O'Dell's award-winning novel, ISLAND OF THE BLUE DOLPHINS. The interactive format provides students with two major activities: an adventure game and a vocabulary enrichment exercise. Teachers can change from multiple choice to "Synonyms and Definitions," or vice versa. They can also set the number of tries (1-3) that students have for each vocabulary statement. Names of students and their scores will be displayed on the student list.

TEACHING OBJECTIVE:
To develop literary appreciation and literary appreciation

COMPETENCIES:
Library/Media & Computer Skills: Grade 6, 3.18 Apply reading, writing, listening, and viewing skills to identify and define sequences, main ideas, relationships, and specific information in a variety of media.

Communication Skills/Reading/Literature: Grade 6, Goal 1 The learner will increase vocabulary to aid in comprehension

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
The students will need to have read the book, Island of the Blue Dolphins. (The program could be used by those who have not read the book as a vocabulary builder. Synonym activities are presented with excerpts from the book.)

INTRODUCTORY ACTIVITIES:
Media Coordinator may use the program during a study of the Newbery Award books. A booktalk may be given on some of the books, especially Island of the Blue Dolphins.

DEVELOPMENTAL ACTIVITIES:
Students will use NEWBERY ADVENTURES: ISLAND OF THE BLUE DOLPHINS. In "Karana's Vocabulary," the student will become familiar with some of the special words found in the book by answering multiple choice questions and by filling in the blanks with the correct words.

APPLICATION/FOLLOW-UP ACTIVITIES:
- Students may write synonyms for vocabulary words not used in the program. These words may be used in a creative writing activity. Some words may not be found in the dictionary and may initiate a "search for information." (Example - Aleuts)
- Students may write about Karana's life after she leaves the island or record the events of the story through a diary Karana might have written.

EVALUATION ACTIVITIES:
Students may participate in activities such as the following:
- prepare a puppet show to share the story with others
- design a diorama of the story setting
- create an advertisement to sell the book.

Science

CURRICULUM AREA: Science
GRADE SUGGESTED FOR LESSON: 7
PROGRAM TITLE: CLASSIFICATION OF LIVING THINGS
PRODUCER: Educational Activities, Inc. **COPYRIGHT:** 1983
EQUIPMENT: Apple II, IBM **MEMORY:** 48K
PERIPHERALS:

PROGRAM DESCRIPTION:
An interactive and tutorial program which presents the learner with events that led to our present system of classification. Students give the correct classification for varied types of animals. The program includes: 1. "Introduction to Classification"; 2. "Binomial Nomenclature"; 3. "Classification Bank"; 4. "Dichotomous Key to the Phyla"

TEACHING OBJECTIVE:
The student will learn to classify animals by studying the characteristic structure of each.

COMPETENCIES:
Science: Grade 7, Goal 4 The Learner will have an understanding of the organization and variety of life forms.

4.3 Know that there are many types of living things.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
None

INTRODUCTORY ACTIVITIES:
The teacher will lead a discussion on classification systems that we use every day (Example - media center, department stores, schools).

Students will cut ten animal pictures from magazines . Groups will sort the pictures by characteristics such as skin covering, habitat, etc. Each group will explain their system of classification and discuss its advantages and disadvantages.

DEVELOPMENTAL ACTIVITIES:
• Students will use "Binomial Nomenclature" to develop an understanding of grouping according to characteristics.
• The teacher will use worksheets #2 and #3 (included with program) with the class calling out a list of organisms for the class to put into correct categories.

APPLICATION/FOLLOW-UP ACTIVITIES:
• Students will use "Classification Bank" with worksheet #4. They will give the complete classification of three animals which are related. Afterwards, a comparison will be written by looking at the completed chart.
• Students will choose one animal and use reference books to find the complete classification for the animal. A poster will be prepared with this information including drawings and/or pictures of the animal.

EVALUATION ACTIVITIES: Teacher prepared quiz consisting of vocabulary, classification methods, and phylogeny of several animals.

CURRICULUM AREA: Science
GRADE SUGGESTED FOR LESSON: 7
PROGRAM TITLE: CREATIVE CONTRAPTIONS
PRODUCER: Bantam Software
COPYRIGHT: 1985
EQUIPMENT: Apple II
MEMORY: 48K
PERIPHERALS:

PROGRAM DESCRIPTION:
A simulation designed to review simple machines. Students will fill in the required mechanism to cause a "contraption" to operate. Based on the Rube Goldberg machines that appeared in newspapers some years ago.

TEACHING OBJECTIVE:
The student will identify the six simple machines and demonstrate uses for each.

COMPETENCIES:
Science: Grade 7, Goal 12.The learner will understand basic phenomena related to physics.

12.3 The student will know that machines are devices that assist in doing work.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have a general knowledge of simple machines and how they are used.

INTRODUCTORY ACTIVITIES:
Using a science text or reference book, students will identify six simple machines by listing them and explaining their uses.

DEVELOPMENTAL ACTIVITIES:
• Students will construct a diagram of a working model using the six simple machines. These machines, after being creatively joined, will demonstrate how a job can be make easier. The final product will be drawn on poster board for display.
• Students will cut out pictures from various sources that illustrate the use of a simple machine or a combination of machines. If pictures are not available, students can brainstorm a list of examples they know.

APPLICATION/FOLLOW-UP ACTIVITIES:
Using the computer program, CREATIVE CONTRAPTIONS, students will select three contraptions from "Fill in Mechanism - Apprentice Level." Students will fill in requested information from their selections on a worksheet prepared by the teacher (See example below).

EVALUATION ACTIVITIES:
Evaluation will consist of a demonstration /explanation of the developmental activity.

CREATIVE CONTRAPTIONS

After completing the selected operation, fill in the type of simple machine(s) required for each job.

Job Title	Job Description	Contraption Description Explain exactly how it works

CURRICULUM AREA: Science
GRADE SUGGESTED FOR LESSON: 8
PROGRAM TITLE: THE EARTHQUAKE SIMULATOR
PRODUCER: Focus Media, Inc. **COPYRIGHT:** 1986
EQUIPMENT: Apple II **MEMORY:** 48K
PERIPHERALS:

PROGRAM DESCRIPTION:
This program provides an understanding of the earth's crust and mantle and the forces that move and change. It. Through the use of animated simulations, students can better understand 1) World Location of Earthquakes, Volcanoes, and Trenches. 2) Plate Movement 3) Earthquake Waves 4) Faults and Folding

TEACHING OBJECTIVE:
The student will be able to 1) Locate major areas of earthquakes, volcanoes, and trenches
2) Recognize a relationship between plate tectonics and changes in the earth's surface.
3) Interpret a seismogram in terms of P-wave, S-wave, and lag time to find epicenter locations.

COMPETENCIES:
Science: Grade 8, Goal 4 The learner will have an understanding of some processes that shape the land and sea

4.2 The student will know about the theory of plate tectonics

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
The student should have an understanding of the earth's layers and formations. The student must understand how to use a compass and know how to plot points on a graph.

INTRODUCTORY ACTIVITIES:
The student will study the world map in "World Location of Earthquakes, Volcanoes, and Trenches" and use the computer to overlay locations of earthquakes, volcanoes, and trenches on a map. The student will complete worksheet 1B (included with program) by indicating major land features, previously shown on the computer, with colored pencils.

DEVELOPMENTAL ACTIVITIES:
Using "Plate Movement,"students wil begin to recognize the direct relationship between the plate movements and changes in the earth's crustal features. While viewing "Plate Movement," the student will complete the questions on worksheet 2A (included with program). Next, the student will complete a chart on worksheet 2B (included with program). This chart will summarize plate boundary, crustal features formed, and examples of these features on earth. Students will indicate plate movement on the diagram by drawing arrows.

APPLICATION/FOLLOW-UP ACTIVITIES:
Students will use Program 3 with worksheets 3A and 3B (included with program) to analyze and interpret a seismogram. In order to determine exact epicenter locations, students will record data from three seismograms. These location points will be plotted on a map. Using a compass, students will find the epicenter.

EVALUATION ACTIVITIES: Students will be given a quiz which consists of selected vocabulary from the worksheets. They will find an epicenter location by plotting points on a map. Through discussion, the student will explain the relationship between plate movement and changes in the earth's surface.

CURRICULUM AREA: Science
GRADE SUGGESTED FOR LESSON: 7
PROGRAM TITLE: GREEN PLANTS
PRODUCER: Educational Activities, Inc. **COPYRIGHT:**1986
EQUIPMENT: Apple II, IBM **MEMORY:**48K
PERIPHERALS:

PROGRAM DESCRIPTION:
Through the use of interactive graphic/text tutorials, the user examines plant cell parts and functions; photosynthesis and respiration. Four lessons are included in the package: #1 Parts of Green Plants (functions and processes); #2 Food Chains and Pyramids; #3 Flowers and Reproductions; #4 Plants from Parts (reproduction).

TEACHING OBJECTIVE:
The student will identify the basic cell parts and give functions of each part.

COMPETENCIES:
Science: Grade 7, 4.1 Know that the basic unit of life is the cell

4.4 Know similarities and differences in plants and animals.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should be familiar with animal and plant cell parts and functions. They should have a working knowledge of the microscope and slide preparation.

INTRODUCTORY ACTIVITIES:
After a brief summary by teacher of plant and animal cell parts and functions, students will use the science text or reference books to draw, label, and color a plant cell diagram. After further research they will add the function of each cell part. During class discussion, students will compare plant and animal cell parts and determine which parts are contained in only plants cells.

DEVELOPMENTAL ACTIVITIES:
Students will compare plant and animal cells by preparing and viewing microscopic specimens of cheek cells (animals) and elodea cells (plants).

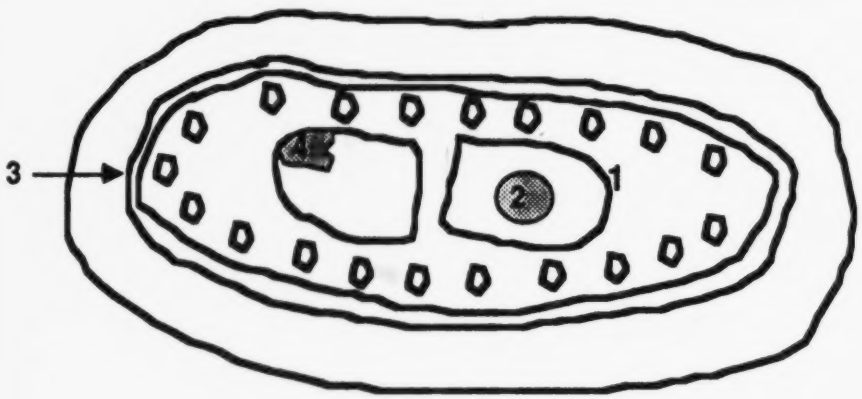
APPLICATION/FOLLOW-UP ACTIVITIES:
While using GREEN PLANTS, "Part #1 Parts of Green Plants," the students will complete a worksheet prepared by the teacher (See example below).

EVALUATION ACTIVITIES:
Students will be able to successfully identify the plant cell parts and functions on a quiz.

MAJOR PARTS AND FUNCTIONS OF THE PLANT CELL

GREEN PLANTS COMPUTER PROGRAM

(Choose number 1 from the menu of this program)



As you view the program, study the diagram above. Write the correct number beside the part shown above. In addition, write the correct function for each part.

_____ Cytoplasm _____

_____ Cell Membrane _____

_____ Nucleus _____

_____ Vacuole _____

Plant cells have a cell wall and chloroplasts. Animal cells do not have these parts.

Use a RED crayon to color the cell wall in the diagram.
Use a GREEN crayon to color the chloroplasts.

Chloroplasts are small sacs which contain _____

The cell wall is an outer layer made of _____

The function of the cell wall is to give the plant _____ and _____

CURRICULUM AREA: Science
GRADE SUGGESTED FOR LESSON: 7
PROGRAM TITLE: MACHINES AND FORCE
PRODUCER: DC Heath
COPYRIGHT:1985
EQUIPMENT: Apple II
MEMORY: 64K
PERIPHERALS:

PROGRAM DESCRIPTION:
This combination of tutorial and simulation allows the learner to utilize simple machines in various problem-solving settings. Three programs are included:
1. "Machine Mastery" (Introduction to simple machines and mechanical advantages)
2. "All In A Day's Work" (How simple machines are used in different occupations)
3. "Sticks and Stones" (Building various structures using simple machines)

TEACHING OBJECTIVE:
Students will identify six simple machines and explain the uses of each.

COMPETENCIES:
Science: Grade 7, Goal 12 The learner will understand the basic phenomena related to physics

12.3 The student will know that machines are devices that assist in doing work.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have a general knowledge of simple machines and how they are used.

INTRODUCTORY ACTIVITIES:
- Students will draw and identify the six simple machines using the science text or reference text.
- Students will demonstrate each simple machine by showing the type of work that they can do.

DEVELOPMENTAL ACTIVITIES:
Students will review "Machine Mastery" and complete worksheets #1 and #2 that are included in MACHINES AND FORCE.

APPLICATION/FOLLOW-UP ACTIVITIES:
Students will use the program, "All In a Day's Work" which will allow them to take a look at various occupations and utilize the appropriate machine for the job. Students will complete a worksheet which describes the tasks and machines for each job (See example below).

EVALUATION ACTIVITIES:
Students will be evaluated through a teacher prepared quiz on simple machines and their uses.

MACHINES AND FORCE

Fill in the information about each job in the space provided

Occupation	Job Description	Simple Machine Needed

Social Studies

CURRICULUM AREA: Social Studies
GRADE SUGGESTED FOR LESSON: 4
PROGRAM TITLE: BANK STREET FILER
PRODUCER: Broderbund
EQUIPMENT: Apple II, C64
PERIPHERALS: printer

COPYRIGHT: 1985
MEMORY: 64K or 128K

PROGRAM DESCRIPTION:
BANK STREET FILER is a data management program that can be used to quickly and accurately store information, find specific information, and sort data both alphabetically and numerically.

TEACHING OBJECTIVE:
To learn about North Carolina Indians and their contributions to North Carolina history.

COMPETENCIES:
Social Studies/Knowledge: Grade 4, 17.1 Identify the major locations of Indian groups in N.C.

17.3 Describe the houses, religious practices, manner of dress, and crafts of the various Indian groups.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should know how to use encyclopedias and indexes to books. A recommended reference on native Americans is Atlas of the North American Indian by Carl Waldman available through World Almanac Education.

INTRODUCTORY ACTIVITIES:
Introduce the concept of data bases by giving each student a 3 x 5 cards on which are written five questions requiring a "yes" or "no" answer. Each card has five holes punched out across the top or bottom. (See example below.) The student answers the questions on the card by cutting out a notch in the hole to indicate a "yes" answer. After the class has finished answering all questions and cutting notches, the teacher or a student demonstrates how to find and sort the class responses. All cards are collected and stacked. A thin instrument (knitting needle is good) is pushed through all holes which answer question #1. All the "yes" answers will fall off the needle and the "no" answers will remain on the needle.

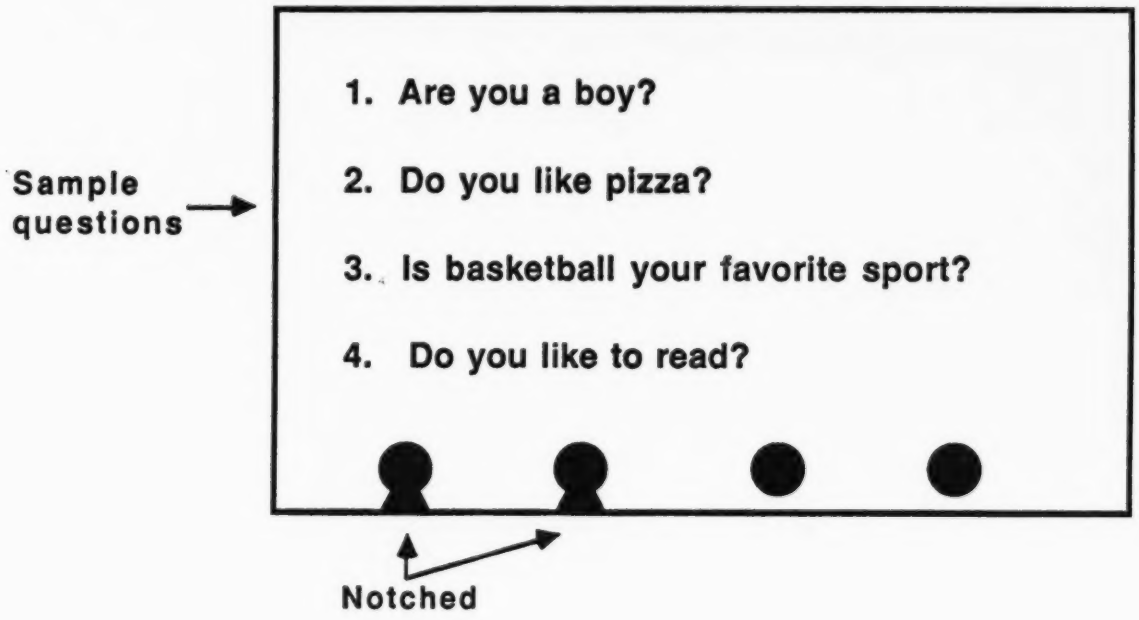
DEVELOPMENTAL ACTIVITIES:
- Students are given worksheet which they are to complete with information on North Carolina Indians. (See example #1 below.)
- Class designs the forms for their database as a group using a large monitor.
- Students enter information they have located into data base. They may contribute to a class data base or each student create his/her own.
- Students use the completed data base to answer questions generated by teacher. (See example #2 below.)

APPLICATION/FOLLOW-UP ACTIVITIES:
- Students may use data base to discover facts about Indians such as similarities, relationships, etc. Discoveries are shared with teacher and class.
- Students collect and/or create examples of Indian crafts, foods, clothing, etc.

EVALUATION ACTIVITIES:
Teacher observation.

DATA BASE INTRODUCTION ACTIVITY

Prepare 3 x 5 cards similar to the example below. Each card should have numbered, prepunched holes along the top or bottom edge. Ask students four or five questions that can be answered "yes" or "no." If an answer to a question is "yes," the student cuts a notch from the numbered hole to the edge of the card. When a knitting needle or a small rod in inserted into the holes, the "yes" cards will fall off. This will demonstrate the terms FIND and SORT to students.



STUDENT NAME: _____
CLASS: _____

NORTH CAROLINA INDIAN TRIBES

1. NAME OF TRIBE: _____

2. LOCATION OF TRIBE: _____

3. TYPE OF HOUSING: _____

4. RELIGION OF RELIGIOUS PRACTICES: _____

---

5. MANNER OF DRESS: _____

---

6. CRAFTS: _____

WORKSHEET #1

A sample worksheet to be used in gathering information about Indian tribes of North Carolina. Worksheets should match the data base format.

STUDENT NAME: _____

CLASS: _____

1. LIST THE NORTH CAROLINA INDIAN TRIBES IN ALPHABETICAL ORDER:

_____ _____ _____

_____ _____ _____

2. WHAT TRIBE(S) LIVED IN PIEDMONT NORTH CAROLINA?

_____

3. WHAT KIND OF HOUSING DID THE LUMBEE INDIANS HAVE?

_____

4. WHAT KIND OF FOOD DID THE CHEROKEE INDIANS EAT?

_____

5. HOW DID GEOGRAPHY AFFECT THE CRAFTS MADE BY THE CHEROKEE INDIANS?

_____

6 HOW DID GEOGRAPHY AFFECT THE HOUSING USED BY TRIBES?

_____

7. GIVE AT LEAST TWO EXAMPLES OF HOW LIVING CONDITIONS AFFECTED THE TYPE OF CLOTHING WORN BY INDIANS. _____

_____

WORKSHEET #2

Students should answer the first four questions by retrieving the information from the data base. To answer the last three questions, they will need to think about how the area in which the tribe lived affected their lifestyle.

CURRICULUM AREA: Social Studies
SUGGESTED GRADES: 6
PROGRAM TITLE: BANK STREET FILER
PRODUCER: Sunburst/Broderbund
COPYRIGHT: 1986
EQUIPMENT: Apple II, C64
MEMORY: 64K or 128K
PERIPHERALS: 2nd drive preferred; printer

PROGRAM DESCRIPTION:
A data base management program that allows students to store information which can then be manipulated, organized and printed in various ways.

TEACHING OBJECTIVE:
To compare fiction and diaries written during the World War II era in order to discover attitudes toward German authority, problems encountered by Jews, attitudes of German youth, attitudes toward Japanese in the United States, etc.

To stimulate thinking and debate about moral problems encountered.

To give students experience in using a data base program.

To create interest in reading historical fiction.

To create a data base that will be accessible to others who may wish to know about books set in the World War II era.

COMPETENCIES:
Social Studies/Knowledge: Grade 6, Goal 4 The learner will know that there are different forms of government and that these forms may change over time.

4.2 Identify the reasons for and the results of a change in government in terms of individual rights.

Goal 8 The learner will know the benefits and burdens of responsibility

8.1 Identify the benefits and burdens of individual responsibility.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have begun a study of World War II.

INTRODUCTORY ACTIVITIES:
Discuss the value of historical fiction. Lead students to discover the specific types of information which one might look for in a study of the attitudes prevalent during the World War II era.

DEVELOPMENTAL ACTIVITIES:
Discuss the uses of data bases. Introduce students to the use of BANK STREET FILER.

APPLICATION/FOLLOW-UP ACTIVITIES:
Students will choose a book from a group suggested by the teacher and the media coordinator. As the student reads the book, an information sheet may be filled out. The information is entered into the data base when the sheet is completed. Categories (fields) may be selected by the teacher or the class may determine them together. Suggested fields include: book title; author;

names of three (or more) major characters; setting (country and/or years); the situation encountered by these characters; the moral problem faced by the main character; the most important thing the student learned about this historical period; the student rating of the book; nationality of the characters; age and sex of the characters;

SUGGESTIONS: In naming categories (fields) for the data base, use short or abbreviated words to name the fields (Example - Character . . . Char). It might help to make a poster explaining the names of the fields. Do not have students divulge the outcome of the story, since others may be using this data base as suggested reading.

EVALUATION ACTIVITIES:

- Sort the information by year and follow the progress of the war and of the situations in which various countries and groups of people found themselves.
- Sort the information by setting and compare the wartime situation in each country.
- Sort the information by the nationality of the characters and compare their attitudes.
- Students should be prepared to discuss the books since information on the data base may need further explanation.

SAMPLE DATA BASE INFORMATION SHEET

Title: _____

Author: _____

Character #1: _____

Nationality #1: _____

Character #2: _____

Nationality #2: _____

Character #3: _____

Nationality #3: _____

The setting of the story is: _____

In what year does most of the action take place? _____

The situation the main characters find themselves in is _____

_____

What is happening in relation to the progress of World War II at the time of the story? _____

_____

The main character may have to make a moral decision in which he or she must go against parents or others in order to follow his/her conscience. If so, describe the problem here. _____

_____

What could a person learn about the history of the World War II era by reading this book? _____

_____

Did you enjoy reading this book? Rate it on an enjoyment scale of 1 to 10 (1 is the highest) _____

CURRICULUM AREA: Social Studies
GRADE SUGGESTED FOR LESSON: 7
PROGRAM TITLE: BEYOND THE RISING SUN: DISCOVERING JAPAN
PRODUCER: Educational Activities, Inc. **COPYRIGHT:** 1985
EQUIPMENT: Apple II **MEMORY:** 48K
PERIPHERALS:

PROGRAM DESCRIPTION:
After an introduction to the program, the user must choose to play the role of a boy or girl. The player is then given a Japanese name and a family situation. The characters are chosen by the computer from a pool of three boys and three girls. As the game proceeds, these fictional characters take on the qualities given them by playing the game.

TEACHING OBJECTIVE:
To show students how money, success, and family harmony influence traditional and modern families in Japan.

COMPETENCIES: Social Studies/Knowledge: Grade 7, 18.1 State the roles of persons in groups, the purposes of grouping and norms of behavior in groups in Asia.

18.2 Identify the relative status of religious, ethnic, and racial groups in a society of Asia.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
The student will need to know how to find the area of a triangle in one of the activities.

INTRODUCTORY ACTIVITIES:
- Have students brainstorm and come up with a brief chronicle of events and factors that influence American students lives from ages16 to 26.
- Students could write a Haiku poem about one thing in their natural surroundings.

DEVELOPMENTAL ACTIVITIES:
- Students list words or phrases they know or have heard in the Japanese language. Make a dictionary of these terms and their definitions. (These could be typed into a computer filing program and listed alphabetically.)
- Use BEYOND THE RISING SUN: DISCOVERING JAPAN either in groups or individually. (Allow approximately 20-40 minutes) Students may work in pairs.

APPLICATION/FOLLOW-UP ACTIVITIES:
- Conduct the class in Japanese style. (Example - remove shoes, bow to instructor and students)
- Plan a Japan day and dress in costume. Include a Japanese menu (coordinate with cafeteria staff if possible); ask students or visitors to demonstrate judo or kendo; involve students in kite-making and origami.
- Design a scale model of a Japanese apartment.

EVALUATION ACTIVITIES: When students have completed the program they can compare their scores to see how successful they were in the modern or traditional Japanese family role. Present a play or role-play some scenes that were based on the decisions made by the students as they used the program.

CURRICULUM AREA: Social Studies
GRADE SUGGESTED FOR LESSON: 4-5
PROGRAM TITLE: DISCOVERY: UNDERSTANDING MAPS
PRODUCER: Nystrom
COPYRIGHT: 1985
EQUIPMENT: Apple II
MEMORY: 48K
PERIPHERALS: color monitor

PROGRAM DESCRIPTION:
DISCOVERY uses graphics and limited animation to reinforce basic map skills in tutorial and simulation formats. It includes "Maps and Globes," "Symbols," "Directions," and "Scale and Distance."

TEACHING OBJECTIVE:
To provide remedial activities for students who are weak in basic map skills

COMPETENCIES:
Social Studies/Skills: Grade 5, Goal 5 The learner will use maps and globes.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have had an introduction to basic map skills and terms.

INTRODUCTORY ACTIVITIES:
Introduce map skills using conventional methods and/or activity-based laminated desk map programs such as OUR NATION: IT'S PAST AND PRESENT by Graphic Learning or Nystrom's HANDS-ON SERIES.

DEVELOPMENTAL ACTIVITIES:
The DISCOVERY: UNDERSTANDING MAPS programs are ideal for small group remedial work supervised by the teacher. Set up the computer with two monitors--one facing the keyboard and one facing the small group. Students will need individual blackboards, chalk, and a sock eraser. (Individual blackboards can be make by placing a 6" x 8" rectangle of black contact paper on a 7" x 9" piece of tagboard.) As the computer program asks for responses, students can write their answers on their blackboards. The keyboarding student will type in the majority's answer. (Rotate student at keyboard periodically.)

APPLICATION/FOLLOW-UP ACTIVITIES:
Additional practice should be provided for individual or pairs of students.

EVALUATION ACTIVITIES:
Use the testing and management system which comes with the program.

CURRICULUM AREA: Social Studies
SUGGESTED GRADES: 6
PROGRAM TITLE: EUROPEAN NATIONS AND LOCATIONS
PRODUCER: DesignWare **COPYRIGHT:** 1985
EQUIPMENT: Apple II, IBM, C64 **MEMORY:** 48K

PERIPHERALS: Color monitor; Color graphics adapter card for IBM

PROGRAM DESCRIPTION:
This program teaches the locations of European nations and geographical, historical, and political facts about them through a game format. The teacher or students may create games by adding up to eighteen lists of 30 facts each. In the "Place Nations on a Map" game the outline and name of a nation appear in a box to the left of an outline map of Europe. The student is asked to move the nation to its proper place on the map. Game points are given for correct answers. In "Match Facts & Locations" game, a fact about a nation is presented and the student identifies the correct nation by moving an arrow to its location on the outline map. Bonus points are earned for speed.

TEACHING OBJECTIVE:
To provide practice in locating and knowing key facts about the nations of Europe.

COMPETENCIES:
Social Studies/Knowledge: Grade 6, Goals 3 through 21, all of which involve the study of Europe and the Soviet Union.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have been introduced to the European nations.

INTRODUCTORY ACTIVITIES:
Individuals or small groups use EUROPEAN NATIONS AND LOCATIONS.

DEVELOPMENTAL ACTIVITIES:
Divide class into groups of about five students each, making sure there is an even number of groups. Have each group make up a list of questions. The answer to each question should be the name of an European nation. Have a representative from each group enter the questions into the program, using the "Match Facts & Locations" game format. A different data disk should be used for each group to ensure secrecy.

APPLICATION/FOLLOW-UP ACTIVITIES:
Each group challenges another group to a duel. The group answering the highest number of questions will progress to the final play-offs. Games continue until one group is the grand winner.

EVALUATION ACTIVITIES:
Teacher observation. The activity described above may be used as an evaluation or review activity at the end of a unit on the European countries.

CURRICULUM AREA: Social Studies
GRADE SUGGESTED FOR LESSON: 8 (4th grade enrichment)
PROGRAM TITLE: FOUNDATIONS OF STATE HISTORY
PRODUCER: Educational Publishing Concepts, Inc. **COPYRIGHT:** 1986
EQUIPMENT: Apple II **MEMORY:** 64K
PERIPHERALS:

PROGRAM DESCRIPTION:
A reading comprehension program with content based on the history of the state of North Carolina. It is practical for both reading and social studies. The program offers multiple choice questions at the end of each story. It contains a remediation system that takes a student back to the part of the story where the correct answer is shown. The text is enhanced with graphics and animation. Student scores are recorded.

TEACHING OBJECTIVE:
To discover the role of historical figures in the development of North Carolina.

COMPETENCIES: Social Studies/Knowledge: Grade 8, 5.5 Know and assess the role of prominent colonial figures

6.2 Know the role of prominent leaders during the Revolutionary era in North Carolina

15.4 Evaluate a list of major political changes and events in the past forty years.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have basic research skills involving encyclopedias and special tools such as North Carolina Gazetteer. Especially recommended is the biographical series, Famous Tar Heels by Richard Cooper (available through Creative Productions, Raleigh, N.C.).

INTRODUCTORY ACTIVITIES:
Use a brainstorming activity to recall names and occupations of famous North Carolinans. A list may be made on chalkboard or transparency. If made on a transparency, the list can be saved and amended as additional people are discovered.

DEVELOPMENTAL ACTIVITIES:
The teacher will provide a list of story codes (see program manual and list below) to direct student reading. The number of stories required would be determined by grade level and capabilities of the students. Students will complete a form for each of the characters in the list. Information not found in FOUNDATIONS OF STATE HISTORY must be obtained through other research. (See example below.)

APPLICATION/FOLLOW-UP ACTIVITIES:
Individuals or pairs of students will develop special reports, filmstrips, collections, etc. on one of the North Carolina personalities.

EVALUATION ACTIVITIES:
Teacher observation.

STORY CODES

ATO4 Edward Teach
AT05 Daniel Boone
BT04 Andrew Jackson
BT06 Sam Erwin
BT09 Charlotte Hawkins
CT03 Thomas Day
CT05 Conrad Reed
CT07 Washington Duke
DT03 Sir Walter Raleigh
DT06 John Chavis
DT08 George Moses Horton
DT10 Henry Berry Lowry
DT12 Paul Green
DT14 Mike Smith
DT15 Andy Griffith
BT08 Susie Sharp

INFORMATION FORM FOR NORTH CAROLINA HISTORICAL FIGURES

NAME: _____

PLACE OF RESIDENCE: _____

AN IMPORTANT YEAR IN HIS/HER LIFE: _____

WHY? _____

"CLAIM-TO-FAME": _____

_____

CURRICULUM AREA: Social Studies
GRADE SUGGESTED FOR LESSON: 5
PROGRAM TITLE: MICROZINE: WAGONS WEST
PRODUCER: Scholastic
COPYRIGHT: 1985
EQUIPMENT: Apple II
MEMORY: 48K
PERIPHERALS: color monitor

PROGRAM DESCRIPTION:
This program is a simulation of a wagon train journey during the westward movement in the mid 1800's. Students encounter various hazards and events and as a result must make decisions regarding supplies, routes, and activities which will affect their success or failure in reaching the desired destination.

TEACHING OBJECTIVE:
To help students understand how physical geography influenced the expansion of settlement in the United States in the 1800's.

COMPETENCIES:
Social Studies/Knowledge: Grade 5, Goal 2 The learner will know that physical geography is a factor in determining where and how people live.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students need some background information regarding the physical features of western United States and the available modes of transportation during the mid 1800's.

INTRODUCTORY ACTIVITIES:
The teacher will use a relief map to review physical features of the western United States, especially the Plains, the Rocky Mountains, and the desert regions. Students will be asked to think of some hinderances these physical features might have for settlement of the western area. Students will also be asked to brainstorm other problems influencing or delaying settlement.

DEVELOPMENTAL ACTIVITIES:
Students will be divided into small groups and using a physical relief map will plan a route to the west coast from Independence, Missouri, during the mid 1800's. Students will need to be reminded of the need to visit trading posts and forts along the way for supplies and should include places such as Fort Laramie, Fort Dodge, Fort Walla Walla, Santa Fe, Fort Hall, etc.

APPLICATION/FOLLOW-UP ACTIVITIES
- Students use WAGONS WEST for a simulation of a wagon trip to the West during this period.
- In a whole class setting, students will explain and justify the route devised by their group.
- The teacher will facilitate a discussion about present day routes to the west coast leading students to analyze the cause/effect relationship between physical obstacles and modes of transportations.
- Students will plan a trip to the west as it might be today. They should compare the costs, time, routes, problems, etc. of the trip with one in the 1800's.
- Students will do follow-up research to discover what has happened to the old wagon trails. Can they be seen today?

EVALUATION ACTIVITIES:
Students and teacher will critique group work as they discuss proposed routes. The teacher will evaluate student understanding by listening to discussion comments and responses.

CURRICULUM AREA: Social Studies
GRADE SUGGESTED FOR LESSON: 6
PROGRAM TITLE: MODERN EURASIA
PRODUCER: Focus Media, Inc.
EQUIPMENT: Apple II
PERIPHERALS: Color monitor preferred

COPYRIGHT: 1985
MEMORY: 48K

PROGRAM DESCRIPTION:
A program which can be useful for review, introduction, or remediation to a study of Modern Eurasia, Ancient Civilizations or the Middle Ages. The student is prompted to answer specific questions on the country or its history. If an answer is missed, the student may receive help by reading information about the topic. He/she is then given the opportunity to answer the question again. Program has optional game to provide motivation for students. Questions are randomly generated. If a student receives the question later, the answers may be reorganized. The computer keeps score.

TEACHING OBJECTIVE:
Students will learn concepts and facts about countries covered in the program and show mastery of knowledge by correctly answering presented questions.

COMPETENCIES:
Social Studies/Knowledge: Grade 6, 4.1 Identify European and Soviet Government forms

Goal 1 Know the major physical features of Europe and the Soviet Union

21.3 Know causes from the past of a significant current event in Europe and/or the Soviet Union.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
An introduction to and/or study of countries covered in program.

INTRODUCTORY ACTIVITIES:
Use as a group activity with one computer in front of class with team competition. Reference materials should be available.

DEVELOPMENTAL ACTIVITIES:
Have a class discussion. Ask students why ancient civilizations ended as they did. What factors have contributed toward making the Middle East the place of turbulance it is today? (Cause and effect.)

APPLICATION/FOLLOW-UP ACTIVITIES:
Students can contribute additional questions based on topics presented in the program.

EVALUATION ACTIVITIES: The scorekeeping provided by the computer will serve as an evaluation of the successful completion of the program. If scores are low, remediation is recommended.

CURRICULUM AREA: Social Studies/Communication Skills/Arts Education
GRADE SUGGESTED FOR LESSON: 6/Gifted and Talented
PROGRAM TITLE: SHOW TIME
PRODUCER: MECC **COPYRIGHT:** 1985
EQUIPMENT: Apple II **MEMORY:** 64K
PERIPHERALS: Color monitor and 2nd disk drive preferred

PROGRAM DESCRIPTION:
This program allows the student to learn the basics of playwriting while producing an original play. Graphics may be chosen for backdrops, props, and characters. Characters can be moved about the stage as desired. Simple music is chosen or composed by the user. The MECC word processor allows scripts to be entered into the program.

TEACHING OBJECTIVE:
To familiarize students with Shakespeare as a major influence in British culture as well as a "mirror of the times."

To reinforce the students' knowledge of blank verse and Elizabethan English.

COMPETENCIES:
Social Studies/Knowledge: Grade 6, Goal 18 The learner will know the influence of ideas and inventions in changing ways of living

Goal 19 The learner will know that ways of living change over time, and understand how and why these changes occur.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have had an introduction to Shakespeare, his works, the Globe Theatre, and characteristics of Elizabethan England.

INTRODUCTORY ACTIVITIES:
Read aloud the story of a Shakespearean play from a book such as Lamb's TALES FROM SHAKESPEARE (available in paperback from New American Libraries, Inc.) Have the students read a scene from that play as written by Shakespeare. Discuss the differences and the characteristics of blank verse.

DEVELOPMENTAL ACTIVITIES:
- Assign a part of the classroom to be a stage and provide practice in moving upstage, downstage, stage left, center and right.
- Discuss the various jobs that must be performed in order to produce a play--actors, costumes, set, script, music, etc. Compare these with what was true during Shakespeare's day.

APPLICATION/FOLLOW-UP ACTIVITIES:
- Introduce SHOW TIME, explaining that the program will allow students to produce their own plays complete with moving characters, colorful sets, and music which they may choose from the disk or compose for themselves. Give basic instructions in the use of SHOW TIME. (If possible, the teacher should have prepared a short production to demonstrate the program.)

•Divide students into groups, each of which will have a specific job in producing a play. Groups will decide among themselves which student will be the leader or director. The director will assist the group in choosing a scriptwriter, a set designer, and a composer of the musical score.

• Require that at least one character speak in blank verse. A science fiction or fantasy type plot would lend itself well to this activity. (Example - A time warp situation could transport a character from Elizabethan England into a modern-day setting.)

EVALUATION ACTIVITIES:

Under the leadership of the teacher, students will review the completed plays, discussing blank verse and Elizabethan English as evidenced in each production.

CENTERS

NORTH CAROLINA SOCIAL STUDIES/PHYSICAL GEOGRAPHY

NORTH CAROLINA: COAST TO COAST

Competency Goal 1 for Grade 8 Social Studies/Knowledge states that the learner will know that North Carolina's historical, economic, and social development has been influenced by its physical geography. Five centers have been developed to meet the separate objectives of this competency. The activities in each center use at least one computer program as well as a variety of other print and nonprint materials. It is envisioned that the teacher will display the five centers around the room and students will work individually and in small groups to complete the activities. The center activities will be introduced with some general comments regarding the importance of North Carolina's physical geography and directions for moving about the centers. If enough computers are available, the entire class may work at the centers at one time. If not, individual students or small groups can take turns. While some students are working at the centers, the remainder of the class can do their research or participate in some other related class activity.

CENTERS

Map Reading Skills

Travel and Regional Attractions

Rivers and Waters

Climates and soils

Cities and Population

CURRICULUM AREA: Social Studies
GRADE SUGGESTED FOR LESSON: 8
PROGRAM TITLE: DISCOVERY: USING LATITUDE AND LONGITUDE (LEVEL 3)
PRODUCER: Nystrom **COPYRIGHT:**1985
EQUIPMENT: Apple II **MEMORY:** 48K
PERIPHERALS: Color monitor

PROGRAM DESCRIPTION:
This program may be used as a resource for teaching latitude and longitude. Illustrative graphics combine with written test to present desired information. Quizzes at the end of each section check the students' ability to apply what they have learned.

TEACHING OBJECTIVE:
To help students locate municipalities and physical features on a North Carolina map.

COMPETENCIES:
Social Studies/Knowledge, Grade 8, 1.1 Identify features of North Carolina geography

Goal 5: The learner will be able to use maps and globes.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have basic knowledge in map reading skills.

INTRODUCTORY ACTIVITIES:
The learning center will feature a world map which includes lines of latitude and longitude. In addition, a globe with lines of latitude and longitude will be a available and a North Carolina atlas. Introductory statements will be typed and pasted on the display board.

"If you do not know the location of a city on a map, what tools can you use to help you locate it? Imaginary lines called latitude and longitude are used to locate places on maps. By knowing the latitude and longitude of a North Carolina city or town, you can easily locate it on a map of North Carolina or the United States. Follow the directions on the activity sheet to learn about latitude and longitude."

DEVELOPMENTAL ACTIVITIES:
Directions for this activity will be typed inside an outline map of North Carolina which has lines of latitude and longitude. Specific wording for the directions for this activity will be determined by the teacher. The activity will include steps such as:

1. Students will boot the program, DISCOVERY: USING LATITUDE AND LONGITUDE and select "A: How To Use This Program."
2. After completing selection A, students will continue with C (Latitude), D (Longitude), and E (Using Latitude and Longitude).
3. Students will keep a record of their scores on the quizes at the end of each selection.

APPLICATION/FOLLOW-UP ACTIVITIES:
Using the North Carolina atlas, students will locate certain Carolina cities and physical features (See example below.).

"Use the latitude and longitude lines on the North Carolina map to determine which Carolina city or physical feature is located at these coordinates:

Coordinates		*Answers*
34 N	*78 W (city)*	*Wilmington*
38 N	*79 W (city)*	*Raleigh*
36 N	*80 W (city)*	*Winston-Salem*
35 N	*79 W (city)*	*Fayetteville*
36 N	*82 W (mountain)*	*Mt. Mitchell*
35 N	*81 W (lake)*	*Lake Norman*
35 N	*81 W (city)*	*Charlotte*
35 N	*77 W (river)*	*Neuse"*

EVALUATION ACTIVITIES:
Students working with the computer program will be evaluated by reviewing their scores on the quizzes. The students' understanding of latitude and longitude will also be assessed by checking their list of cities and physical features located using the given coordinates.

NOTE TO TEACHER: Some students at the eighth grade level will need little or no work with lines of latitude and longitude and could bypass this center Other students may need only a review and could use selection E in the computer program. The teacher could create other activities to introduce the concept of minutes as they are used with degree readings in lines of latitude and longitude. Other eighth graders will need to do all the center activities.

CURRICULUM AREA: Social Studies
GRADE SUGGESTED FOR LESSON: 8
PROGRAM TITLE: MOUSEPAINT
PRODUCER: Apple
EQUIPMENT: Apple II
PERIPHERALS: printer and mouse

COPYRIGHT:1984
MEMORY: 64K

PROGRAM DESCRIPTION:
MOUSEPAINT is a program which allows the student to create a variety of graphics using a mouse for lettering, drawing and making diagrams and charts.

TEACHING OBJECTIVE:
To help students evaluate the influence of North Carolina geography on the economic, political, and social development of the state.

COMPETENCIES:
Social Studies/Knowledge: Grade 8, 1.2 Evaluate the influence of North Carolina geography on its economic, political, and social development.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
The students will need to have proficiency in researching information from reference sources such as the vertical file, gazetteers, pamphlets, and atlases.

INTRODUCTORY ACTIVITIES:
The learning center area will feature a number of examples of travel brochures from various sites throughout North Carolina. Introductory statement may be presented as another travel brochure.

"One of North Carolina's nicknames is 'Variety Vacationland.' Our state received this nickname because of the variety of places, events, and activities which people can enjoy for their leisure. What are some of North Carolina's attractions which would appeal to you in planning a vacation?

DEVELOPMENTAL ACTIVITIES:
Directions for these activities may be presented as part of a travel brochure.

"When you plan a vacation to an unfamiliar place, travel brochures can be used to learn something of the attractions of the area. Select one of the following areas below and prepare a travel brochure describing historic sites, climate, natural attractions, entertainment, and cultural attractions of the area.

Winston-Salem
New Bern
Wilmington
Edenton
Asheboro
Raleigh Asheville
Charlotte
Outer Banks
Boone/Banner Elk
Blue Ridge Parkway
Great Smoky Mountains
Pinehurst
Grandfather Mountain
Morehead City
Chapel Hill
Cherokee

Use a variety of resources to gather your information including vertical file materials, North Carolina pamphlets, gazetteers, and atlases. Use a work processing program to prepare the text for your brochure. Representative photographs or drawings should be included in your brochure. You will want to include a simple map showing highways and surrounding cities. Use MOUSE PAINT to add a map and create pictures for your selection."

APPLICATION/FOLLOW-UP ACTIVITIES:

The student will incorporate copies of pictures, written text, and a map to produce a travel brochure which will be displayed for the class to read and study as they make a decision as to their choice of an ideal vacation spot.

EVALUATION ACTIVITIES:

After studying the travel brochures students will vote to determine the most popular vacation spot. Class discussion will give opportunities for students to explain why they made the choice they did.

CURRICULUM AREA: Social Studies
SUGGESTED GRADES: 8
PROGRAM TITLE: FRED WRITER
PRODUCER: Cue Softswap
EQUIPMENT: Apple II
PERIPHERALS: printer

COPYRIGHT: 1986
MEMORY: 64K

PROGRAM DESCRIPTION:
A public domain word processing program which allows the student to enter, revise, and print text. A special feature allows the creation of prompt boxes. Information that is contained within these boxes will not print. Teachers can use this feature to add instructions, directions, activities, etc. for the student.

TEACHING OBJECTIVE:
To help students locate on a map the principal rivers and bodies of water in North Carolina and to evaluate their influence on the state's economic and political development.

COMPETENCIES:
Social Studies/Knowledge: Grade 8, 1.3 Locate major rivers and bodies of water in North Carolina, and explain their impact on economic and political development.

Goal 1 The learner will know that North Carolina's historical, economic, and social development has been influenced by its physical geography.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students need to be able to use a dictionary for defining terms. Students also should be able to use the index of a North Carolina atlas to locate places and physical features.

INTRODUCTORY ACTIVITIES:
The learning center display will feature a drawing or picture of a river with scenes of activities along the waterfront. Introductory statement will be arranged with art work.

"The influence of rivers and other bodies of water on the development of North Carolina has been great. Rivers provide a source of transportation, recreation, hydroelectric power, and surface drainage. The activities at this center will help you know more of their impact on the political economic development of North Carolina."

DEVELOPMENTAL ACTIVITIES:
Directions for these activities will be typed on construction paper cut in outlines of items related to water such as a canoe, steamship, or fishing trawler. Specific instructions for the activities will be determined by the teacher.

1. Students will use a dictionary to look up the following terms related to bodies of water.

River
Lake
Sound
Inlet

2. Students will use the index to a North Carolina map to assist them in locating the following bodies of water. After finding them on the map, the students will locate and identify them on their individual outline map of North Carolina.

Cape Fear
Yadkin
Neuse
French Broad
Pamlico Sound
Lake Mattamuskeet
Oregon Inlet
Lake Norman

APPLICATION/FOLLOW-UP ACTIVITIES:
Students will use a word processing program to write a description of life along one of these bodies of water. Students will be told to pretend that their home is located beside one of these bodies of water. They will be asked to describe in narrative the impact, both past and present, this body of water has had upon the political and economic area near their home.

EVALUATION ACTIVITIES:
Essays created by the students will be put on display around the room and students will be given an opportunity to share with the class some of the highlights their work.

CURRICULUM AREA: Social Studies
GRADE SUGGESTED FOR LESSON: 8
PROGRAM TITLE: PFS:FILE/REPORT
PRODUCER: Scholastic
COPYRIGHT: 1985
EQUIPMENT: Apple II, IBM
MEMORY: 128K
PERIPHERALS: printer

PROGRAM DESCRIPTION:
A data base management program which allows the user to file, retrieve, and sort information. Files can be updated and altered without reentering all information. User can design and create files in any desired format.

TEACHING OBJECTIVE:
To help students have an understanding of the effect of the regional climates and soils on the agriculture of North Carolina.

COMPETENCIES:
Social Studies/Knowledge: Grade 8, 1.4. Demonstrate a knowledge of the regional climates of North Carolina and their effect on agriculture and industry.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students will need to have proficiency in researching information in reference materials such as encyclopedias, N.C. INFORMATION AND FACT BOOK, NORTH CAROLINA ALMANAC, and publications available from the N.C. Dept. of Agriculture, Raleigh, N.C.

INTRODUCTORY ACTIVITIES:
The learning center display will feature a collage of agriculture products produced in North Carolina. Introductory statements will be pasted on the collage.

"Agriculture is the foundation of North Carolina's economy. Though farming in North Carolina has gradually changed over the years, we are still a state of small farms and varied crops. The presence of different climates and soil types make possible "variety agriculture" in North Carolina. A study of North Carolina agriculture will show you some of the crops grown in North Carolina and the major region or regions where each is grown."

DEVELOPMENTAL ACTIVITIES:
Students will work in small groups and will use a variety of reference materials to fill in the Agriculture Crop Worksheet (See example below). Each student will be responsible for gathering information about two or three crops. Each group will use a computer data base such as PFS: FILE/REPORT to prepare their file about North Carolina agriculture products. Fields to be used in the file should be the same as those used on the worksheet.

APPLICATION/FOLLOW-UP ACTIVITIES:
• Students will use the data base which their group has prepared to answer the following questions about North Carolina agriculture.

1. Which crop is the largest money-producer for North Carolina?
2. What are some of the crops which prefer the soil of the coastal plain?
3. Why are apples grown in the mountains rather than along the coast?
4. Why is "double cropping" possible in the Tidewater Region?
5. Does climate appear to have a significant effect on the production of corn? Support your answer.

6. Considering the present-day efforts to band smoking, do you feel tobacco will continue to be as important to North Carolina agriculture? Why or why not?

• As a classroom activity students may locate pictures of North Carolina agricultural products and place them on a large outline map according to the area where they are grown.

EVALUATION ACTIVITIES:

Students will evaluate their success in preparing the data base as they are able to use it to answer the questions given in the application activity. The teacher can evaluate the students work by checking the written answers to the questions.

AGRICULTURE CROP WORKSHEET

Use encyclopedias, almanacs, your textbook, and atlases to answer the following questions for a crop of your choice. The crops you may choose from are: tobacco, peanuts, apples, soybeans, corn, vegetable, and forest products.

CROP NAME: _____

REGION(S) WHERE GROWN*: _____

CLIMATE CHARACTERISTIC(S) NEEDED:** _____

SOILS NEEDED*:** _____

VALUE OF CROP PRODUCTION (1976): _____

*** use mountains, piedmont, coastal plain**

**** use long-growing season, warm days and nights, warm days and cool nights, abundant rainfall, plenty of sunshine**

***** use sandy loam, silty loam, loamy sand, marshy, red clay loam, brown clay loam**

CURRICULUM AREA: Social Studies
GRADE SUGGESTED FOR LESSON: 8
PROGRAM TITLE: EASY GRAPH II
PRODUCER: Grolier
COPYRIGHT: 1987
EQUIPMENT: Apple II, IBM, C64
MEMORY: 64K
PERIPHERALS: color monitor; 2nd disk drive preferred

PROGRAM DESCRIPTION:
EASY GRAPH II is a computer graphing tool which teaches the student to understand and create their own graphs. The student has the option of creating and saving pictographs, bar graphs, pie graphs, and line graphs.

TEACHING OBJECTIVE:
To help students understand that North Carolina is subdivided into municipal political divisions such as cities and towns and to relate the concentration of population in these cities to the physical features of the area.

COMPETENCIES:
Social Studies/Knowledge: Grade 8, 1.5 Understand that North Carolina is subdivided into county and municipal political divisions

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
The students will need to have proficiency in researching statistical information in reference materials such as atlases and almanacs.

INTRODUCTORY ACTIVITIES:
The learning center display will feature a silhouette of a city skyline. Introductory statement will be typed and pasted on the silhouette.

"Many North Carolinians live in cities. While relatively small when compared with cities such as New York and Chicago, the population of North Carolina cities continues to grow as more people leave the rural areas and come to the cities in search of jobs. The activities at this center will allow you to become familiar with North Carolina's largest cities and to compare their size with that of your own town. Do each of the activities in numerical order.*

** If you live in one of the largest cities, compare your city with the other large cities in North Carolina"*

DEVELOPMENTAL ACTIVITIES:
Directions for these activites will be printed on black contruction paper and cut in the shape of buildings. Specific wording for the directions will be determined by the teacher. Activites to be included in the center are as follows:
1. Students will use atlases, road maps, or almanacs to determine the population of key cities in North Carolina. From these statistics, the five largest cities will be determined.
2. Students will use a gazetteer, road map, local Chamber of Commerce publication, or other reference sources to determine the population of the town in which they are now living.
3. Students will locate the cities on their outline map of North Carolina. Near each identified city, students will list two or three physical features which might have contributed to the growth of the city.

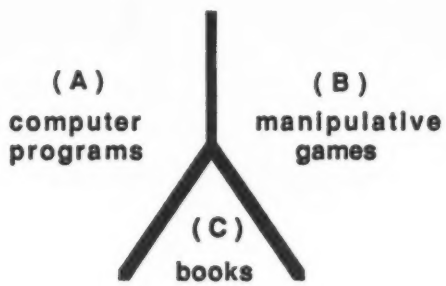
APPLICATION/FOLLOW-UP ACTIVITIES:
Directions for this activity will be printed on black construction paper cut in the shape of buildings. Specific wording for the directions will be determined by the teacher. This activity will involve students in creating a bar graph depicting their findings regarding population of the five North Carolina cities and their town using EASY GRAPH II. The horizontal line will give the cities and vertical line will represent population.

EVALUATION ACTIVITIES:
Graphs will be printed and displayed for viewing and comparison. Outline maps will be checked by teacher for accuracy and completeness.

Problem Solving Center for Enrichment

This center deals with Thinking Skills as outlined in the NORTH CAROLINA COMPETENCY-BASED CURRICULUM TEACHER HANDBOOK, pages 9-16, as well as problem-solving competencies in Mathematics. The activities involve the use of two computer programs and a variety of supplemental materials in tutorial and practice form. Several problem-solving strategies are utilized. Students may work in small groups or pairs, but individualization is recommended. The teacher need only give a simple explanation of the center. The usage time or checking system is left to the teacher's discretion. A rotation system within a specified time is a good approach.

Set the center in three sections similar to the example below:



INTRODUCTORY ACTIVITIES:
Use techniques such as:

- Incorporate analogies into class discussions
- Introduce and illustrate several exciting brainteasers
- Prepare a scientific research lesson with activities
- Encourage students to solve high level word problems

NOTE: Midwest Publications (P.O. Box 448, Pacific Grove California, 93950) offers a good thinking skills series and workshops.

DEVELOPMENTAL ACTIVITIES:

(A) Begin the center with the computer programs, "Diagonals" and " "Thinking with Ink." The tutorial explains the strategies that the students will use throughout the center.

PUZZLE TANKS may be used at anytime and on any ability level.

(B) The manipulative games section gives the teacher a chance to pull out all of those old games that have been collecting dust such as: Rubik's Cube, Hi Q, etc. A newer game such as Rubik's Magic Puzzle could be purchased. This section of the center gives students hands-on exploration.

(C) The section containing books contributes a "springboard" to the students' problem solving interests. Particular problems may be chosen by the teacher or students. Often, enthusiastic students will share perplexing problems with teachers, parents, or other students.

The following is a list of books currently available which would be good to place in the center:

Barnard, D. St. P. Fifty Daily Telegraph Brain-Twisters, Sterling Publishing Co., c1985.

Summers, George J. The Great Book of Mind Teasers and Mind Puzzles. Sterling Publishing Co., c1986.

Townsend, Charles. The World's Best Puzzles. Sterling Publishing Co., c1986.

These books contain activities that directly correlate with the computer programs:

Brandreth, Gyles. Brain-Teasers and Mind Benders. Sterling Publishing Co., c1979.

#34 Triangular Challenge (p. 33)
#45 Pick a Pint (p. 41)
#47 Dotty (p. 42)
#54 More Than Meets the Eye (p. 51)
#62 One to Eight (p. 56)
#72 Trick Triangles (p. 68)
#88 Join the Dots (p. 81)
#97 It's a Square World (p. 88)
#104 Dots and Areas (p. 95)

Burns, Marilyn. Math for Smarty Pants. Brown Paper Bag Books, c1982.

What Comes Next (p. 35)
Quick Change (p. 37)

APPLICATION/FOLLOW-UP ACTIVITIES:

- Utilize other computer programs. Some, such as Oregon Trail, provide real life adventures.
- Have a daily classroom brain teaser.
- Bring to the students' attention sections of magazines and newspapers that contain analytical puzzles.
- Write language experience problems in class.
- Provide hands-on problem solving in all subject areas, especially math and science.
- Use brainstorming techniques in groups.
- Relate current events to classroom discussions. List solutions to various world problems.
- Bring out solutions to past problems in history
- Use simulation games

EVALUATION ACTIVITIES:

- Have a day for students to use measurement stations. Set up problems similar to those in PUZZLE TANKS. Use rice, beans, or other substances for measurement Have the students record their findings. The teacher will check work and answers.
- Give students a problem. Have them attack the problem using the three strategies mentioned in the PROBLEM-SOLVING STRATEGIES program.

CURRICULUM AREA: Thinking Skills and/or Mathematics
GRADES SUGGESTED FOR LESSON: 7-8
PROGRAM TITLE: PROBLEM-SOLVING STRATEGIES
PRODUCER: MECC
COPYRIGHT:1983
EQUIPMENT: Apple II
MEMORY: 48K
PERIPHERALS: color monitor

PROGRAM DESCRIPTION:
Four programs are included in this package. Trial and error, exhaustive listing, and simplifying are the problem solving techniques used. Supplemental work sheets are provided in the manual. "Diagonal" leads the student through the exploration of dodecagons and diagonals. The process gives the students an opportunity to apply learned knowledge with various figures. "Squares" is similar to "Diagonal." It deals with the gridding of square units within a larger square. "Thinking with Ink" gives students the opportunity to map various sizes of countries with colors. Each color has a value. The object is to shade the countries in the most economical manner. "Pooling Around" deals with the variety of patterns in the path of a rolling pool ball. NOTE: This topic may not be suitable for skill demonstration.

COMPETENCIES:
Thinking Skills: p. 12, 4. Application (g) applies previous learning to new situation
(i) selects and carries out process

Mathematics: Grade 7, 2.7 Estimate and then determine the solution of a problem solving situation involving the addtion or subtraction of up to 4-digit numbers.

8.1 Collect data or take data already collected and record it in a table, chart, or graph.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Students should have knowledge of closed plane figures; be able to identify sequences; have skills in using multiplication for problem solving.

INTRODUCTORY ACTIVITIES:
(See cover sheet)

DEVELOPMENTAL ACTIVITIES:
(See cover sheet)

APPLICATION/FOLLOW-UP ACTIVITIES:
(See cover sheet)

EVALUATION ACTIVITIES:
(See cover sheet)

CURRICULUM AREA: Thinking Skills and/or Mathematics
GRADES SUGGESTED FOR LESSON: 7-8
PROGRAM TITLE: PUZZLE TANKS
PRODUCER: Sunburst
COPYRIGHT: 1984
EQUIPMENT: Apple II, IBM, C64, TRS 80 II/4 -CoCo
MEMORY: 48K
PERIPHERALS: color monitor

PROGRAM DESCRIPTION:
The student is challenged with a word problem which requires filling two containers which have a preassigned measurement limit. Their combined contents must accurately fill a tank truck. The problems increase in difficult. Students are given options of four levels of play. Problems without solutions are inserted throughout the program to add to the challenge.

TEACHING OBJECTIVE:
To develop critical thinking and problem solving skills. To reinforce mathematical computation skills.

COMPETENCIES:
Thinking Skills: p. 12, 4. Application (g) applies previous learning to new situation (i) selects and carries out process 6. Synthesis (i) makes predictions based on available facts

Mathematics: Grade 7, Goal 7 The learner will do some measurement activites and solve related problems

2.5 Use appropriate problem solving strategies to solve work (or story) problems, e.g.situations where the information is insufficient, sufficient or extraneous.

INSTRUCTIONAL SEQUENCE

PREREQUISITES: (experiences, activities, materials exposure)
Student should have addition and subtratction skills.

INTRODUCTORY ACTIVITIES:
(See cover sheet)

DEVELOPMENTAL ACTIVITIES:
(See cover sheet)

APPLICATION/FOLLOW-UP ACTIVITIES:
(See cover sheet)

EVALUATION ACTIVITIES
(See cover sheet)